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ABSTRACT

Various financing alternatives and their impact on Canadian university excellence were studied, in order to recommend a position representative of the Association of Universities and Colleges of Canada (AUCC). The following were considered: (1) the results of the other studies undertaken by the AUCC and previous study reports on university financing; (2) the financing of research and its relation to the quality of education and research for the future; (3) the role of tuition fees in university financing; (4) the financial aspects of accessibility to students and the socially disadvantaged; (5) federal, provincial, student, and private donor financial responsibilities; and (6) the mechanisms for financing continuing education, with special attention to the possible role of employees in the financing. Recommendations are provided regarding the proper extent of federal government concern with university affairs, including specific proposals for re-orienting federal activities accordingly. Because of provincial differences in cultural patterns, social needs, and their prospective demographic situation, each province has its own structure of educational institutions at the postsecondary level. Policy alternatives for provincial governments are presented, however, regarding grants, fees, financial aid, and research. A new design for federal policy is advanced that involves respect for provincial autonomy and provincial financial burdens. (PJM)

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CANADIAN UNIVERSITIES 1980 AND BEYOND

Enrolment, Structural Change and Finance

Peter M. Leslie

HE 013 348

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and Colleges of Canada
September 1980

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this book is dedicated to

JAMES ALEXANDER CORRY

who has

dedicated his life

to the development of the individual

within a free society

PREFACE

Modern societies thrive on innovation; they are also increasingly and inescapably bureaucratic. Is this a paradox? Perhaps so, for bureaucracies are commonly thought to stunt the growth of everything but themselves; they are said to suffocate initiative and inventiveness with the leaden blanket of routine. While such imagery is overdrawn, it nonetheless states the problem: how to create social institutions whose very stability does not weaken their capacity for innovation. Such institutions must be ones in which all received wisdom and habits of thought are constantly reevaluated, and in which the fresh idea is prized but is also routinely subjected to searching criticism. The creativity within such institutions must be applied to socially rewarding objectives, but in such a way as to avoid snuffing out its spark.

How can institutions be fashioned to such a form, and provided with the resources necessary for their important work? That, briefly, is the problem of university finance.

Universities are by no means the only institutions which stimulate innovation within a society, but social and scientific innovation is their raison d'être. This principle should guide them in all they do, both in teaching and in the often-inseparable conduct of research. At all levels of instruction, a good university does far more than impart knowledge or provide training in technical skills; it stimulates the student to query the purposes of what he is doing, the techniques of doing it, and the substance of existing knowledge -- in short, to become an informed critic and a sober innovator. A society which lacks ample numbers of people such as these is culturally impoverished; it will, moreover, soon find itself in an economically precarious or backsliding condition. Innovators constitute an especially valuable resource for society because without innovation, knowledge and technique can be neither generated nor, except haphazardly, imported.

The capacity for innovation is evanescent, and must be constantly renewed. In university faculty and students this requires the stimulus of personal interaction, the regular updating of teaching curricula and the redefinition of research objectives; and it requires access to ample library resources and modern scientific equipment. The university exists to supply the opportunities and facilities necessary for these purposes; to do so demands both adaptability to the needs of its own members and the financial ability to supply those needs.

In this report it will accordingly be argued that universities must have a large measure of institutional autonomy as well as a dependable income which is adequate to society's expectations of them. But not too dependable! University revenues ought not be so fixed as to be unaffected by levels of performance. An attempt must be made to reconcile financial security with the provision of rewards for excellence. On the one hand it must be recognized that universities have large needs, and that penury will drive universities to mediocrity or worse. On the other hand, it is well to remember that money alone will not ensure excellence. Universities are not immune to shoddiness, any more than other institutions are; and it is salutary for them to have a financial stake in enhancing their reputations. When high standards in teaching and research cannot ease financial strangulation, and when lagging performance will incur no financial penalty, the university becomes prey to fatalism, declining morale, and the tolerance of inanition in its professional staff.

These dangers are particularly acute in the existing conjuncture of events in Canada. Canadian universities, as they move into the 1980's, will find it increasingly difficult to think in terms of anything but survival. This is partly because in most provinces their incomes, if discounted for inflation, have been dropping for some years and may well continue to do so. But the reasons will be by no means uniquely financial. They will pertain also to falling student numbers and the attendant incapacity to hire new staff. It will be increasingly difficult for them to obtain an infusion of talent, ambition and idealism. Universities face a lengthy period of retrenchment or contraction; and it is important that the design of new funding arrangements should not exacerbate the problems and dangers which are equally the legacy of rapid growth during the 1960's and the anticipated result of no-growth or shrinkage in the next two decades or so. Changes in funding practices for Canadian universities must take account of the difficulties faced by and within the universities at this juncture in their history. Financial arrangements must be such as to encourage internal change and self-renewal, and constant adaptability to the needs of scholarship as well as to the needs of the society which sustains them and which they serve.

* * *

This book is a report to the Association of Universities and Colleges of Canada. It was commissioned by the AUCC Board of Directors on August 10,1976. The board requested a study which would "...analyze financing alternatives and their impact on university excellence, with a view to recommending a firm university position on the matter". The Board also specifically mandated the author of the report to consider:

--the results of the other studies undertaken by the AUCC [dealing with: the teaching role of the university: centres and programs of excellence; and foreign students, international mobility, and the university's role in international development], and previous study reports on university financing;

--the financing of research and its relation to the quality of education and research for the future;

--the role of tuition fees in university financing;

--the financial aspects of accessibility (i.e., is student aid adequate and well administered? Are we coping with problems of access to universities for Canadians in low income brackets and from less advantaged social groupings?);

--financial responsibilities (federal, provincial, student, private donor) e.g., is the ratio of costs of university education that is borne by students or their parents to that borne by taxpayers a reasonable one?; and,

--the mechanisms for financing continuing education, with special attention to the possible role of employers in the financing.

There is rather more that can usefully be said on some of these subjects than on others. A recommendation favouring large-scale private giving, or the finance of any significant part of university operations by industry, would have no very obvious implications for further action. Presumably the universities get what they can from non-government sources, and will be looking for ways to augment such income in the future. These subjects, except as an aspect of research financing, have consequently been accorded only peripheral attention here.

The main emphasis in the report is on those aspects of its mandate which can be brought under the rubric of the public support of Canadian universities. This hardly restricts the subject, since tuition fees are now usually set by government, and the bulk of research funds also comes from the public sector. Almost all aspects of university finance are either the subject of direct government action, or are affected to a profound degree by government policy. In consequence, this report is really an extended commentary on the influence of public policy on the structure of the university sector in Canada and the quality of university teaching and research.

Special attention has been paid to the respective roles of the federal and the provincial governments. The report contains recommendations regarding the proper extent of federal government concern with university affairs. It makes specific proposals for defining federal purposes in post-secondary education, and for re-orienting federal activities accordingly. Such proposals are ones which, by virtue of their application to Canada as a whole, the AUCC might appropriately consider for endorsement, modification, or rejection.

It is more doubtful that the AUCC ought to be making recommendations on policy matters which can be or ought to be implemented only at the provincial level. The provinces differ in their cultural patterns, their social needs, and their prospective demographic situation. Each province now has its own structure of educational institutions at the post-secondary level. It would be hazardous if not impertinent -- to say nothing of its being impolitic -- for a Canada-wide association to be making policy recommendations to provincial governments.

Accordingly, this report makes no explicit recommendations for provincial policy. I have, however, offered my own opinion on the wisdom or unwisdom of certain policy choices. It seems to me more in keeping with the distinction (as argued here) between the matters which are properly of exclusive provincial concern and those in which there is a federal interest, that recommendations on provincial matters should be made only by provincial or regional university associations. I leave it to them to take up, or to ignore, the comments I make upon provincial policy, and to formulate and consider such resolutions as they may deem appropriate.

ACKNOWLEDGEMENTS

The preparation of this report was assisted by many more people than can be acknowledged here, in some cases because of their holding an official position which makes specific reference to them inappropriate. I should particularly like to record my thanks, however to Ken Clements, Mario Creet, Rod Fraser, John Graham, Marino Kristjanson, Frank Milligan, Ed Safarian, Bernard Sheehan, Claude Thibault, Bernard Trotter, Ron Watts and Walter Young, all of whom gave me advice at one time or another, or read and made helpful suggestions on parts of the manuscript; and to Rosemary Cavan, Hyam Gold, Lawrence Hagen, Pam Menchions, Carol Pentland, Ann Porter, Anne Raizenne, Eleanor Searle and Lori Sterling, who helped me with aspects of the research or rendered editorial assistance.

Laurie Balderson, who performed magic with the word processor, deserves special thanks for putting up with innumerable revisions and indecisions, and (especially towards the end) for spending many hours manipulating her electronic genie at non-preferred times, in order to deliver a finished manuscript within the last of many deadlines, all the previous ones having been broken by me.

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chapter one

PROSPECTS FOR CANADIAN UNIVERSITIES, 1980-2001

What is the present condition of Canadian universities? What is in store for them during the remainder of the century? In posing these questions we are concerned with:

--levels of educational attainment in Canada, and Canadians' access to a university education;

--the ability of the universities to serve the community as a cultural, scientific, and technological resource;

--the structure of the post-secondary education system in each province, and its bearing on the quality of teaching and research.

Our enquiry, even where it is concerned primarily with standards of achievement, requires us to examine quantitative trends. In this chapter, then, we look at the recent expansion and -- in most or all provinces -- the prospective contraction in student numbers, and we consider the impact of enrolment fluctuations on excellence in teaching/learning and research.

1.1 VANTAGE POINT: THE PRESENT

Institutions, like people, find it difficult to escape their past. Not only is the present situation the result of past decisions, but the severity and character of problems yet to emerge will be historically conditioned. Institutional options in responding to those problems will be limited by the structure of universities and university systems, by the abilities of the people that run them, and by traditional notions of acceptable behaviour.

The present is the vantage point from which one surveys possible futures. What one sees depends partly on one's mood, but it also depends on where one stands. For Canadian universities in 1980, the vantage point is very like a pinnacle or, perhaps, the top of a rather shaky ladder.

1.1.1 GROWTH AND THE MENTALITY OF GROWTH, 1955-1970

The expansion of Canada's universities in the latter 'fifties and throughout the 'sixties was not merely unrestrained: it was stimulated by governments, industry, and the universities alike; it was planned; and it outstripped all expectations. Successive projections of enrolments, although each was more generous than those which preceeded it, all proved too modest (see Charts I-1 and I-2). The percentage of young people who completed high school with a creditable record, and who subsequently sought admission to university, increased steadily. Nonetheless these percentages continued to lag behind those in the United States, as Canada apparently followed U.S. trends after an interval of about fifteen years (Bladen, et al., 1965: 14).

It was generally supposed, as a consequence, that for the foreseeable future the resources of Canadian universities would continue to be stretched to the limit by rising student demand. Planning, both in governments and in the universities, was predicated upon this assumption.

It will be observed from Charts I-1 and I-2 that full-time enrolments doubled between 1955 and 1962, and again between 1962 and 1969. Although student numbers provide the most obvious index of university growth, there are other possible measures of change in the system, namely: investment in physical facilities, increases in staff complements, and the development of graduate schools and research capacity. These measures are especially important if one wishes to consider, as we do, the longer-term impact which the period of headlong expansion will have on Canadian universities.

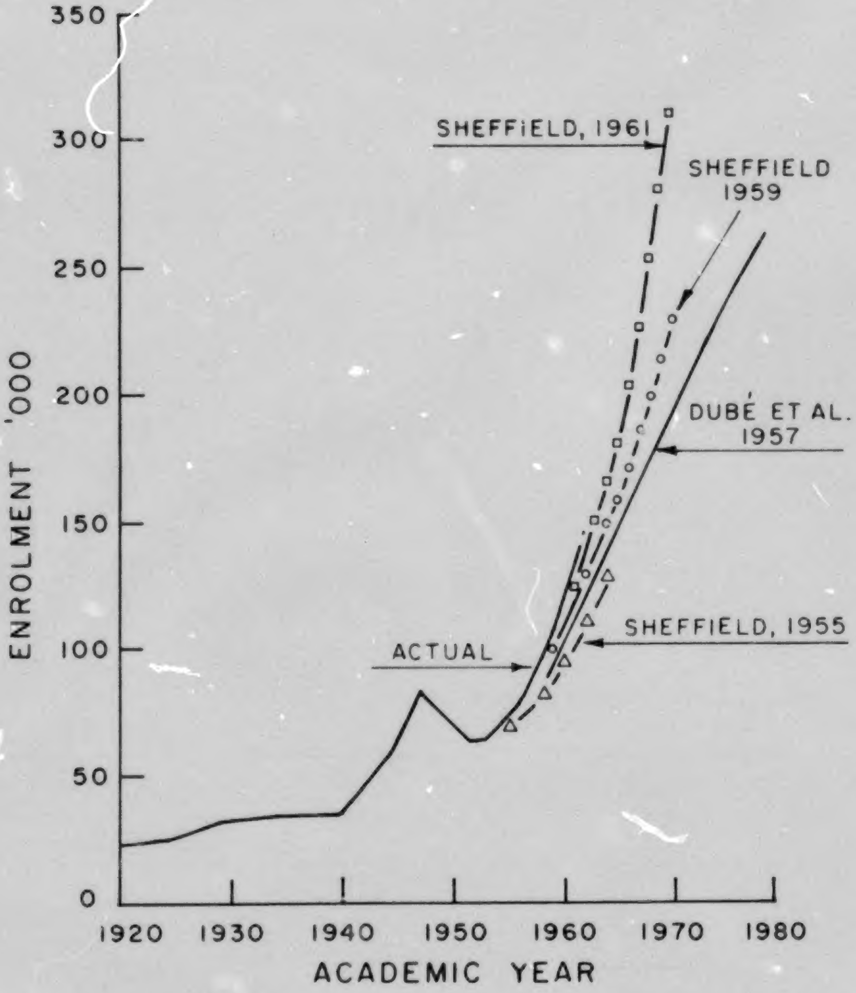
As is evident from Chart I-1, universities in Canada had gone through a sharp period of growth in enrolments in the immediate postwar period. They then experienced an almost equally sharp, but short, contraction. It was recognized of course that the influx of war veterans, whose university training was publicly supported, would not boost university enrolments for more than five or six years. During the postwar bulge, the universities were stretched to capacity, but they met their temporary needs with makeshift arrangements. Consequently, the subsidence of enrolments did not occasion severe difficulties for them.

By contrast, the expansion which peaked during the

18

CHART I-1

FULL TIME FALL ENROLMENT IN CANADIAN UNIVERSITIES AND COLLEGES: Actual, 1920 to 1962; Projections made in 1955, 1957, 1959, and 1961

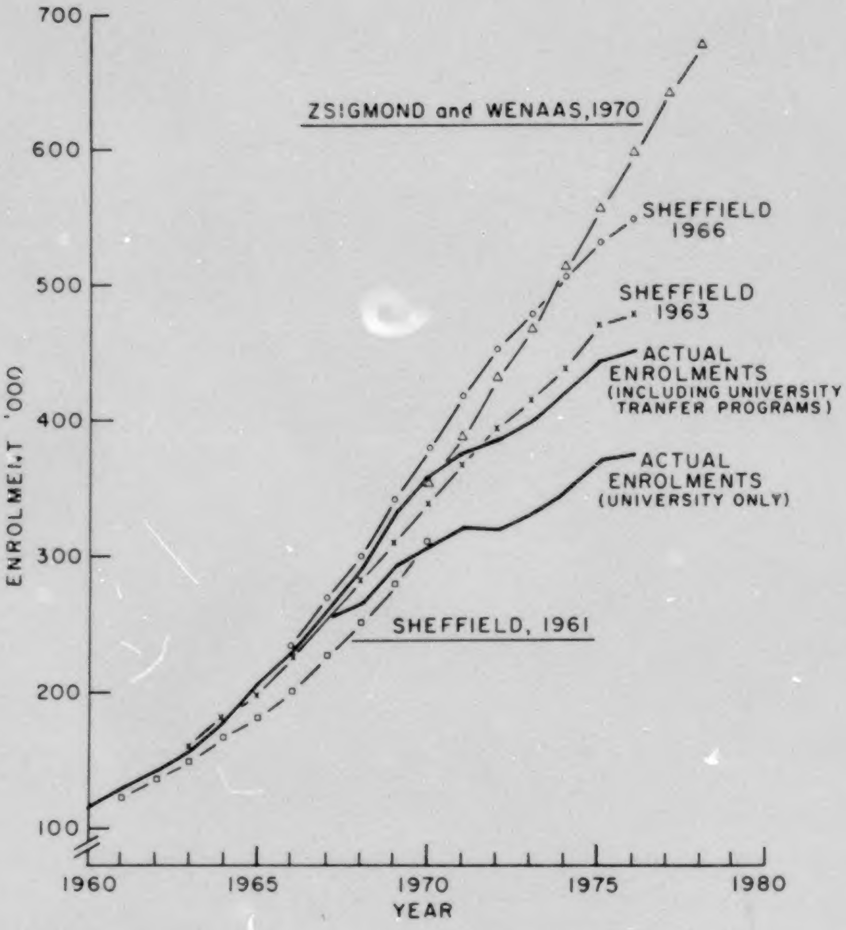


Source: Survey of Higher Education, Part I: Fall Enrolment in Universities and Colleges 1962-63. (now Cat. 81-204). Dominion Bureau of Statistics - Education Division, Ministry of Trade and Commerce, August 1963.

1.1.1

CHART I-2

FULL TIME FALL ENROLMENT IN CANADIAN UNIVERSITIES AND IN UNIVERSITY TRANSFER PROGRAMS IN COLLEGES: ACTUAL, 1960 TO 1976; PROJECTIONS MADE IN 1961, 1963, 1966, AND 1970



Sources: Statistics Canada: Education in Canada (Cat. 81-229), 1973 to 1977. Edward F. Sheffield, enrolment projections made for Canadian Universities Foundation and AUCC, 1962, 1964, 1966. Z.E. Zsigmond and C.J. Wenaas: Enrolment in Educational Institutions by Province 1951-52 to 1980-81, Economic Council of Canada, 22-1-25S, 1970

1967-1971 period was aimed at equipping the universities for long-term program development and growth in enrolments. The universities acquired vastly improved and extended physical facilities, and they made long-term commitments to staff who will not reach retirement age until the 1990's or later (see Section 1.4, below).

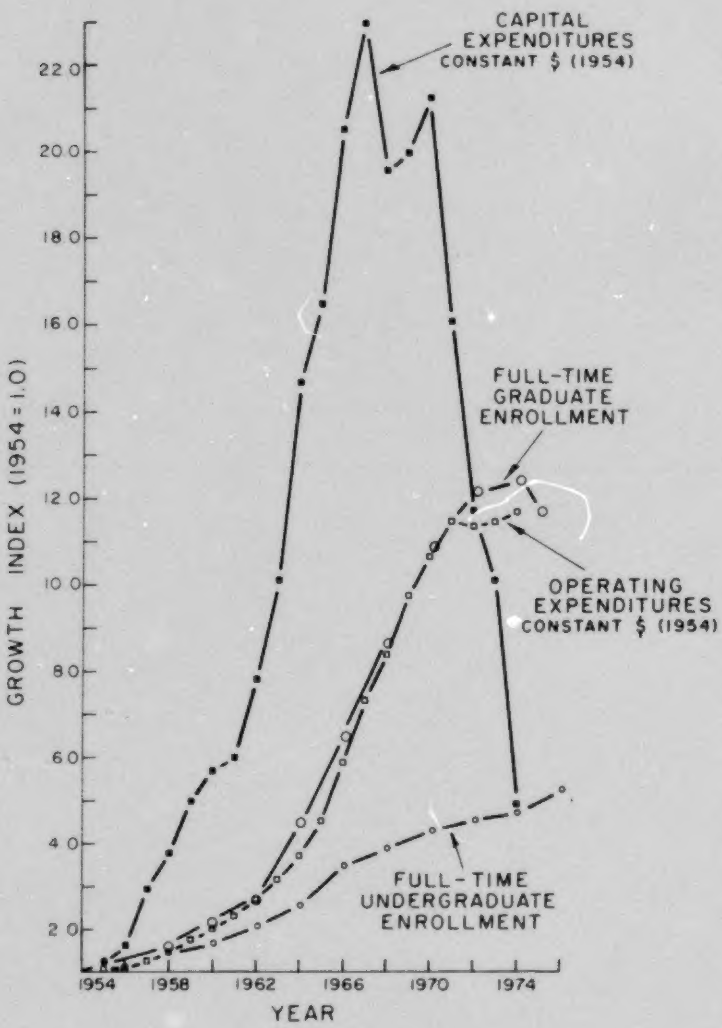
Some selected indices of growth over the period between 1954/55 and 1975/76 are displayed in Chart I-3. The two expenditure items in the chart (capital and operating expenditures) are shown in constant dollars, with expenditures at the 1954/55 level assigned an index figure of 1.0. Full time enrolments at the graduate and undergraduate levels are also indexed. It will be observed that over the 20-year period undergraduate enrolments grew by a factor of five, while both operating expenditures and graduate enrolments grew by a factor of 12. It was in capital expenditures, however, that the pattern of growth was most dramatic: constant dollar investments in physical facilities attained 23 times their former height in a period of little more than a decade, and then dropped sharply, especially after 1970/71. A further demonstration of changes in investment patterns is made in Chart I-4, which expresses capital expenditures as a percentage of annual operating expenditures.

In gauging the legacy of this period, what counts is not so much actual physical growth as the frenetic scramble to corner all available resources. It was not a period for thinking much about where the money was coming from or the conditions which in later years might be imposed upon the universities in return for continued public support. Nor was it a time in which the universities could always afford to apply the highest standards in hiring, or to hesitate over the duration of the contracts which staff recruits were enticed to sign. A university which did not eagerly snap up public money and scarce talent would lose out in the race with other more aggressive universities -- which were, after all, only responding to the prodding of governments to open up new places for the progeny of the high schools. Indeed, many new universities were created by the provincial governments with exactly this purpose in mind; they started with nothing but some raw land and a rich budget.

One particularly noticeable feature of the growth years was the implantation of graduate programs with, in some cases, inadequate staff and scanty laboratory or library resources. Very often such programs had little prospect of

CHART I-3

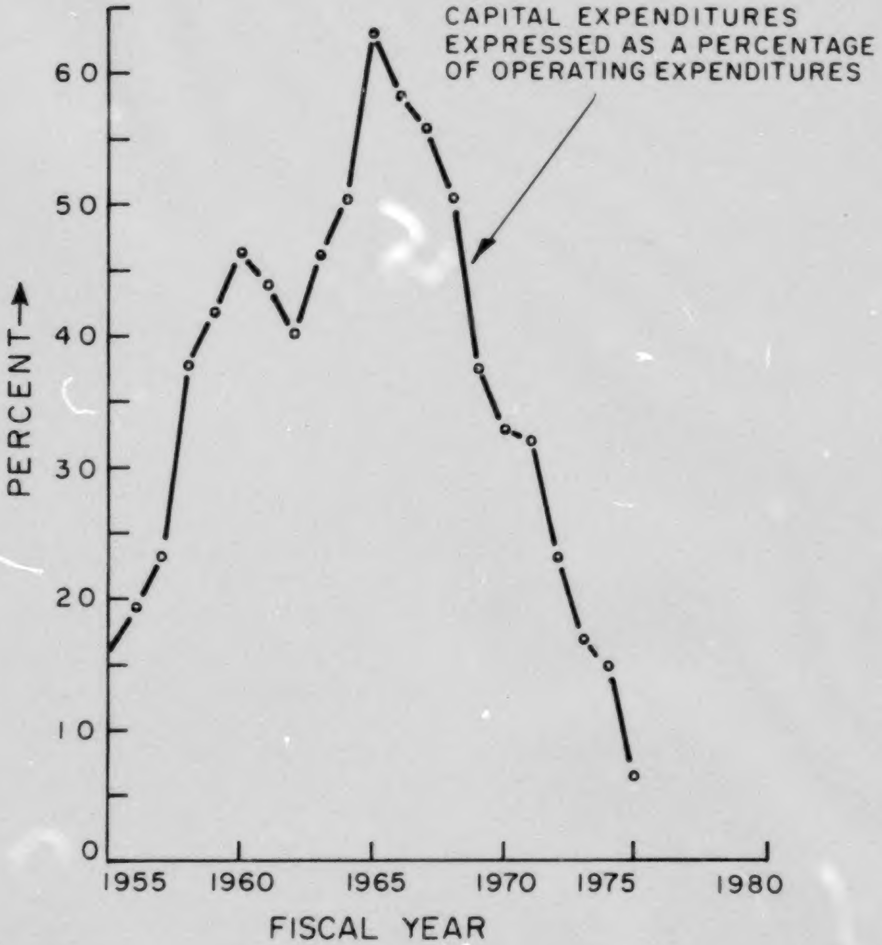
SELECTED INDICES OF UNIVERSITY GROWTH 1954/55 to 1975/76



Sources: Statistics Canada: Financial Statistics of Education, 1967/68 to 1974/75 (Cat. 81-208); Prices and Price Indexes, various years (Cat. 62-002); Education in Canada, 1973 to 1977 (Cat. 81-229); Fall Enrolment in Universities, Part I, 1975/76 (Cat. 81-204).

CHART I-4

RATIO OF CAPITAL EXPENDITURES TO OPERATING EXPENDITURES 1954/55 TO 1974/75



Sources: Statistics Canada: Financial Statistics of Education, 1967/68 to 1974/75 (Cat. 81-208)
Education in Canada, 1976 (Cat. 81-229)

attracting students of the calibre which justifies graduate training. The same sense of no-end-in-sight expansion, however, was just as evident here as it was in the case of staff recruitment. "If not this year, we'll be starting even further behind next year...if we begin now, we can build up the graduate program to a respectable standard over time...next year is too late...." Besides, a graduate program helped a lot in recruiting staff. This, truly, was the mentality of "no limits to growth".

1.1.2 A PERIOD OF UNCERTAINTY, 1970-1979

Fall enrolment levels in 1971 came as a real shock to university administrators in almost every province. For the first time in 20 years there was a dip in student numbers -- this time an entirely unexpected one. There was much talk of drop-outs and stop-outs, as registrars puzzled over the unpredictable behaviour of youth who suddenly seemed to be questioning whether university was worth it.

The dip in enrolments proved to be shallow and temporary, but it was enough to inject a new mood of caution into the universities and provincial ministries of education. On the whole, the 'seventies were a period of much more restrained growth than the preceding decade and a half. Bullishness evaporated, partly because of changed suppositions about the educational and career choices made by young people, but also, more recently, because of awareness of the shrinkage in the size of the university-age population which the 'eighties will bring.

The cautious and indeed nervous mood of the 'seventies, however, was also induced by a markedly different attitude of government and the public towards the universities. In 1971 the federal government announced a "cap" on its transfers of money to the provinces in support of post-secondary eduation, and provincial expenditures henceforth grew at a much more modest rate than had previously prevailed, a rate which the universities had come to take virtually for granted. Many students, and large segments of the public, became disenchanted with the universities. As economic conditions wobbled, it became recognized that the vaunted contribution of higher education to economic growth and prosperity had been overblown and oversold. And finally, the availability of research funds tightened up somewhat, and assessors of research applications became much more restrained and critical.

These developments, of course, did not occur in all provinces at exactly the same time or to exactly the same degree; but it is nonetheless remarkable to what extent the change in mood was felt across the country. Corresponding changes of attitude occurred outside the universities as well. Provincial governments became much more conscious of the problems of duplication of facilities, and took steps to limit the implantation of new academic programs. Universities' grants commissions and advisory agencies tightened up their controls on the introduction of new academic programs. Governments and their agents started to monitor more carefully the universities' expenditures of funds.

Now, at the brink of the 'eighties, the outlook almost everywhere is for a contraction in enrolments, a long period of shrivelling financial resources, and external pressure to eliminate what one universities' commission has called "the redundant, the obsolete, and the unnecessary" (British Columbia, UCBC, 1977: 5). In this situation, it seems only prudent to examine the experience of the past decade to see how the universities, and the governments which supply most of their funds, behaved in a period of uncertainty. We must explore the impact of changed circumstances on the universities' capacity to promote excellence in teaching/learning and in research. To some extent we may be able to extrapolate from the recent past into the immediate future. Features we can barely see now may become prominent and obvious over the next decade or two.

1.2 EDUCATIONAL ATTAINMENT AND ACCESS TO UNIVERSITY

Our enquiry into the present condition of Canadian university education and the prospects which face Canadian universities begins with a look at levels of educational attainment. The subject is of concern to us because of what it says about the success of Canada's universities in meeting widely agreed objectives for Canadian higher education. The data available to us, hitherto unpublished, also informs our estimates of probable future trends in enrolment (Section 1.3, below).

1.2.1 EDUCATIONAL ATTAINMENT AND SOCIAL GOALS

Equity. The extension of educational opportunity has long been a goal of public policy in Canada, especially for the provincial governments; and it is a goal whose realization appears to command widespread support among the Canadian public. The opportunity to develop one's personal capacities to the fullest is a matter of social equity and owes its importance in part to the personal satisfaction which people derive from increasing their knowledge and understanding of the world. It also contributes to equality of individual life-chances. A progressive and humane society must place the extension of educational opportunity near the forefront of its collective purposes.

We may judge a society's success in achieving equality of educational opportunity at the university level by looking at three factors which contribute to it. First there is the sheer capacity of the system: are there enough places to ensure that all qualified applicants can obtain a university education? A second factor is the removal of financial barriers to continuing one's education. Most Canadians would not wish higher education to be open only to the wealthier segment of the population or to those whose families must make extraordinary sacrifices if they are to obtain it. This consideration points to the importance of student assistance schemes. Unfortunately, however, one cannot assert that the problem of access to university can be solved simply by implementing even the most generous of grants and loans programs.

The third factor is the reduction -- to the extent that policy can do so -- of the cultural, social or psychological obstacles to achieving equality of educational opportunity at all levels. Young people's expectations may be such that only a fraction of those with real ability will plan on obtaining higher education, will complete high school, and will apply to university. Few will do so except in the confidence that, if they are admitted, it will be financially within their means to attend without imposing an unduly heavy financial burden on their families. To the extent that those who live in remote parts of the country, or who come from disadvantaged personal backgrounds, fail to consider seriously the possibility of going to university, access is unacceptably restricted even if all qualified applicants to university actually are admitted.

Because there are many factors affecting educational opportunity, and direct measures of these factors are difficult or expensive to obtain, we shall use data on levels of educational attainment as a guide to interprovincial differences in access to university. "Access" here is intended to mean "having an opportunity". Since one may choose not to avail oneself of an opportunity, educational attainment data provide only an imperfect index of access.

For personal reasons, or because general cultural attitudes do not much encourage the pursuit of learning, one may make other choices than to continue one's schooling to the university admission level and eventually to attend university. I would guess, however, that culturally induced differences among provinces in the statistical frequency of high school completion and university attendance are less important influences on educational attainment than are factors such as wealth, estimated economic and career advantages obtained by going to university, and the structure and pedagogical philosophy of provincial educational systems. Accordingly I would argue that educational attainment is the best single index of educational opportunity that we possess.

Economic advantages. A widening of access to university is also important on grounds not related to those individuals directly involved, or to their immediate families. Society may be presumed to reap advantages from having a high proportion of university-trained people among its members. The most tangible and hitherto most discussed of these advantages is the goal of economic growth; it stresses the importance of technological achievement and of having a highly qualified work force. Public opinion now appears to be much less convinced of the economic advantages of enlarging the numbers of young people who obtain a university education. Indeed, this seems to have been over-stressed in the past, for example by the Economic Council of Canada in its Second Annual Review (1965). It would be a dangerous mistake, however, to disregard the relationship between education and economic development. Manpower considerations and the nation's technological needs dictate otherwise.

Political and cultural advantages. There are, in addition to the support of economic development, less tangible advantages to society deriving from having a highly educated populace. Citizenship is one of these. The more that governments do, the greater the need for a citizenry well qualified to judge government performance and -- in a capacity which is neither professional, genuinely private nor wholly public -- to both complement and control the behaviour of the public authorities. Finally, in addition to economic growth and to citizenship, there is the whole character and culture of a society: what we now rather primly call "the quality of life". A society which is indifferent to its intellectual heritage and religious traditions, indifferent to the arts, and ignorant alike of its physical environment and of its own character as a collectivity is barren and demoralized. An educated populace is the best defence against cultural desolation.

We must, then, discover what we can about levels of educational attainment in Canada as a whole and in each province. The matter is important partly because it tells us, as no other measure can, about the extent of educational opportunity available to Canadians. Second, quite apart from equity considerations, educational attainment is important because society benefits economically, politically, and culturally from having a highly educated populace. Given the subject of this report, our concern is primarily with attendance at and access to university. To deal with this subject, however, we must look also at retention rates in the schools. This is necessary for two reasons. One is that those who attend university must, in general, have completed high school in an "academic stream"; the prospective clientele for the universities is the body of high school graduates. The second reason is that students' choices in school are conditioned by their expectations about continuing their education beyond high school and by their assessment of the financial feasibility of attending university (see below, Section 3.4.1). Thus different levels of educational attainment cannot be considered in isolation from each other.

1.2.2 ESTIMATES OF EDUCATIONAL ATTAINMENT

In principle, the best way of obtaining recent and reliable information on educational opportunity and levels of educational attainment is by interviewing a group of students in one particular year (say, at entry to high school) and then keeping track of them for a period of years thereafter. This is known as the "cohort study" method. Those Canadian cohort studies which are available have, because of the expense of this approach, been conducted within a rather small geographical area. It would take many of these studies, conducted at different times and in different places, to provide information on trends and regional variations in educational attainment. Few cohort studies exist, however, and their usefulness in the context of this report is therefore limited to informing the suppositions we make about the reliability and the up-to-dateness of data collected in other ways.

The obvious source of more comprehensive data is the enrolment records of educational institutions. For estimates of retention rates in school, one can look at enrolments in (say) grade 12 and compare them with enrolments in grade 2, ten years earlier. This would be perfectly reliable if there were no difficulty in classifying high school years (what is a "grade 12" student when promotion is by subject?), if no students failed or stopped out for a year or two, and if there were no migration. Clearly, none of these suppositions holds, and consequently the more careful studies of school retention rates try to make adjustments for all these factors. Even so, their reliability is doubtful.

The margin of error induced by stop-outs and by migration is greatly magnified when one looks at enrolments in post-secondary institutions. As a result, the usual index of educational opportunity at the post-secondary level is taken to be the participation rate, calculated by dividing total university or total post-secondary full time enrolment by the relevant age group -- usually 18 to 24. The calculation of participation rates is easy, the figures are up to date, and they virtually beg for inter-provincial and cross-national comparisons. On the other hand, they are distorted by the presence of over-24's in the university population (this inflates "participation rates"); it is hard to neutralize the effects of inter-provincial mobility of students; and the figures give no information on what happens at "the critical juncture" (Anisef, 1973) when students complete high school and must decide to look for a job, go to university, or go to some other post-secondary institution. Still, participation rates do, in the absence of important shifts in the percentage of over-24's in the university population, give us a good impression of trends in university attendance. They too are useful in helping us to extrapolate from outdated data obtained from another source.

As a complement to the above methods of measuring educational attainment, I have chosen to use unpublished data from the 1971 census. This was made possible by the issue of a "Public Use Sample Tape" (PUST) containing information from the "long" census form. The form was completed by one household in every hundred, separate information being obtained about each member of the household. The PUST data indicate, among other things, whether respondents had completed high school, whether they had attended university (and if so for how many years), and whether they had obtained a university degree.

My computer wizard was Hyam Gold. We retained responses to the above questions made by those aged 18 to 30, and correlated answers with (a) province in which the respondent last attended school, (b) sex, and (c) individual years of age. In this way we obtained a profile of educational attainment among those who had reached normal high school leaving age during the 1960's, such that interprovincial variations were clearly identified, as were differentials in attainment by sex. The data also prompt us to seek an explanation of anomalies in apparent trends in educational attainment over the decade.

The findings are summarized in Charts I-5 and I-6; detail is presented in Appendix A.

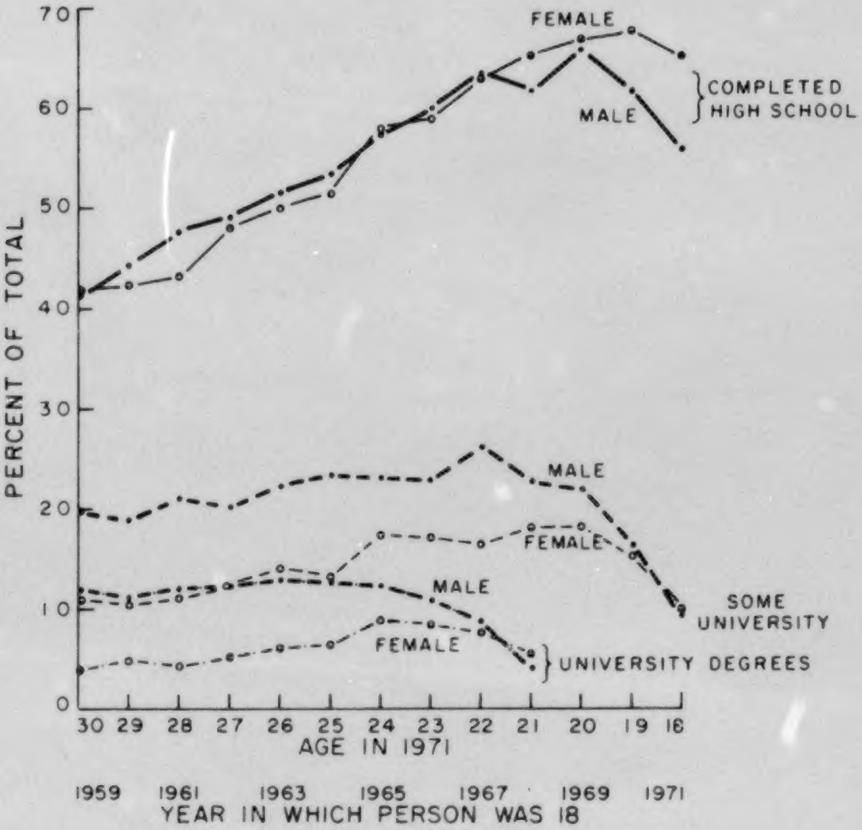
Chart I-5 aims to depict trends in educational attainment over the decade. This is accomplished by the device of classifying respondents by individual years of age, placing the youngest at the right hand side of the chart. If the usual high school completion age is 18, then those who were 30 in 1971 would normally have completed high school (if they did so at all) in 1959. Those aged 29 would normally have completed high school in 1960, and so forth. Correlating age and educational attainment thus gives us a trend-line for the 1960's. Of course, one has to discount the last few years in each category, as the drop-off in the trend lines presumably reflects the age of the respondents rather than an actual decline in the numbers eventually completing high school, attending university, and obtaining a degree.

In interpreting Chart I-5, it is essential to note that the categories are not mutually exclusive. For instance, "high school graduates" does not mean "completed high school but went no further". The reason for presenting the data in this way is that this chart is designed to show the size of the "pool" of potential recruits to a higher level of educational attainment. Thus, the large gap between the trend lines for high school completion and attendance at university demonstrates the tendency for high school graduates to take immediate employment or to proceed to some non-university form of post-secondary education. Similarly, the gap between "some university" and "university degree" indicates the rate of attrition within university.

The purpose of Chart I-6 is to highlight variations in educational attainment by province. My original intent was to use the data from respondents aged 20 and 21 to estimate high school completion rates, the age group 22 to 24 to estimate the percentage with "some university," and ages 24

CHART I-5

EDUCATIONAL ATTAINMENT, CANADA, 1971, BY SEX AND BY INDIVIDUAL YEARS OF AGE (18 TO 30)

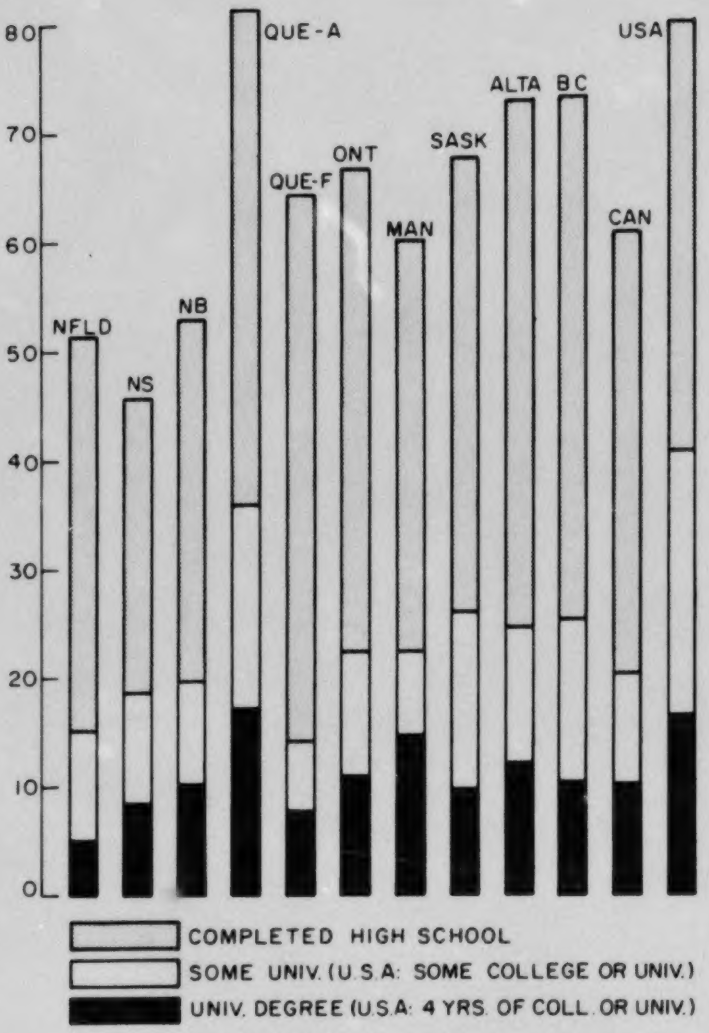


Note: The categories in this chart are not mutually exclusive. For example, of males aged 25 in 1971, 53.4% had completed high school, and almost half of these (23.2% of the total) went on to university. Of the latter group, half (12.5% of the total) had completed a degree.

Source: Canada Census 1971, Public Use Sample Tape.

CHART I-6

EDUCATIONAL ATTAINMENT, VARIOUS AGES: CANADA 1971, BY PROVINCE OF HIGHEST SCHOOL GRADE; U.S.A. 1970, BY SEX



Sources: Canada Census 1971, Public Use Sample Tape; United States Census: Population Characteristics, March 1970 (Series P-20, no. 207).

to 27 for "university degree". This would capture the most recent age cohorts who could be expected to have reached the relevant level, although admittedly some understatement of educational attainment would be incurred since some persons graduate from high school at an age greater than 22, and so forth. The reported levels might be low, but the regional comparisons presumably would still hold.

Observation of the data, however, showed that using standard age grouping would have introduced a serious distortion. In some provinces the younger age cohorts showed a sharp increase in levels of educational attainment (making it undesirable to exclude them), whereas in other provinces taking a younger age cohort would apparently have included a number of respondents who were too young to have reached the relevant level. The differences appear to reflect peculiarities in the structure of educational systems in the various provinces. To avoid these problems, I simply took the three consecutive years-of-age which would produce the highest figure for each category of educational attainment, and reported an average. Readers who consider this procedure doubtful can draw their own inferences from the data set out in Appendix A.

1.2.2.1 High School Completion

Universities admit mature students to some programs without a high school diploma, but in most circumstances completion of high school is a prerequisite for admission to a university. For this reason we cannot, in this study, afford to ignore trends and regional variations in rates of high school completion.

It is evident from Chart I-5 that an increasing proportion of young people completed high school in Canada during the 1960's. It is also clear, from a glance at Chart I-6, that regional variations were considerable, and that a smaller percentage of Canadian youth finished high school than did their U.S. counterparts. Do these impressions accurately reflect the situation as it existed a decade ago, and if so do they still hold today?

To answer these questions I compared the census responses with data on retention rates in school (see Table I-1). The high school completion rates reported in Chart I-6 fit quite closely with figures on high school retention rates for 1969/70, except for Manitoba and Alberta. The latter exception is understandable, since Alberta classifies

TABLE I-1

HIGH SCHOOL COMPLETION: 1971 CENSUS DATA, AND SCHOOL RETENTION RATES 1969/70, 1970/71, AND 1976/77

Province	High School Completion[a]	School Retention Rates[b]		
		1969/70[c]	1970/71[c]	1976/77[d]
	(1)	(2)	(3)	(4)
Nfld.	51.5	..	..	..
P.E.I.	..	59.5	65.6	65.8
N.S.	45.9	49.4	60.2	54.7
N.B.	53.0	55.0	52.7	66.0
Que. (Francophone)	64.4	..	82.0	87.6
Que. (Anglophone)	81.5			
Ont.	66.6	67.6	71.4	71.5
Man.	60.2	71.8	72.8	71.0
Sask.	67.9	73.7	76.6	69.6
Alta.	73.2	86.3	89.3	81.0
B.C.	73.4	75.6	78.8	71.7
Canada	63.9	..	75.2	..

Notes: (a) 1971 census responses. Figures correspond to information in Chart I-6. Age group approximately 19 to 21 in 1971. See text, and Appendix A.

(b) For Newfoundland, Gr. XI enrolment related to Gr. II enrolment 9 years earlier.

(c) Adjusted for interprovincial and international movement of population.

(d) Unadjusted for population movements. This is likely to understate school retention rates in provinces with an outflow of population (Atlantic provinces, Manitoba, and Saskatchewan), and to overstate retention rates in provinces experiencing a net inflow, especially British Columbia and Alberta.

(e) For 1975/76.

Sources: (a) High School Completion: 1971 census See Chart I-6 and Appendix A.

(b) School Retention Rates: Statistics Canada, Education in Canada, (Cat. 81-229).

For 1969/70 and 1970/71: 1973 edition, 361. (Figures for Newfoundland and Quebec, 1970/71, provided to the author by Statistics Canada).

For 1975/76 (Quebec only): 1976 edition, 113.

For 1976/77: 1977 edition, 66.

For estimates of retention rates, comparing unadjusted figures and figures adjusted for population movements, see 1973 edition, 362.

a student as "Grade XII" when he takes even one course at this level; thus many Alberta students would not, even after successful completion of their year, be able to graduate from high school. The discrepancy in figures for Manitoba (and to a lesser extent for Saskatchewan) I cannot explain, unless one imputes greater honesty to residents of these provinces. Indeed, the embarrassment in Table I-1 is that there is not a wider differential between the census data and enrolment data, since the census figures ought to report successful completion of the high school curriculum, while retention rates in school are based on fall enrolments. A discrepancy of one to five per cent is below the noncompletion rate in the final year in high school (a combination of drop-out, failure, and simply being "short" a subject for graduation).

Trends in high school completion during the 1970's show an overall decline in the western provinces and in P.E.I., stability in Newfoundland and Ontario, and an upswing in Nova Scotia, New Brunswick, and (especially) Quebec. Broadly speaking, there is a trend towards greater uniformity in rates of high school completion across the country -- except for Quebec, which shows a marked increase and has attained a position of leadership. It may be objected that Quebec's strong showing is due to its having, as does Newfoundland, an 11-year school cycle. The objection is quite possibly valid, although a 1974/75 study of retention through to Grade XI in all provinces also places Quebec in a high-ranking position (Statistics Canada, 1976: 149, 150).

In brief, there was a sharp rise in rates of high school completion across the country through the 1960's. The trend moderated and, in Saskatchewan, Alberta, and British Columbia -- the provinces with the highest completion rates according to the 1971 census -- reversed itself, during the 1970's. Quebec alone has continued to show a marked advance in the last few years. By Canadian standards, a province which sees two-thirds of its young people graduate from high school is doing well. Rates of high school completion in Canada are a good 15 per cent below those in the United States, and among the provinces there persist differences of 15 or even 20 per cent.

1.2.2.2 Transition to University

The census data on university attendance contain a number of surprises for those whose impressions on this subject are based on a survey of participation rates. In my judgment, data from the PUST supply a salutary corrective to the usual impressions about regional differences in university attendance, and help us to interpret changing trends in participation rates during the 1960's and 1970's.

1.2.2.2.1 Variations by Province

University students are a very mobile group: they may go away from their home province to pursue their studies, and afterwards they may stay put, return home, or move elsewhere. In the result, university participation rates are not a faithful measure of educational opportunity or access to university for young people. Even if one adjusts one's estimates on the basis of the fragmentary information available on interprovincial mobility of university students, in an effort to pinpoint differentials in opportunity or access, the results will be marred by errors in the collection and reporting of data and by changes in permanent residence.

Problems of this sort are eliminated by the use of the PUST, which records the province in which respondents last attended school. This datum, when correlated with educational attainment, is a better guide to interprovincial variations in educational opportunity than data on province of birth, province of attendance at university, or province of current (1971) residence.

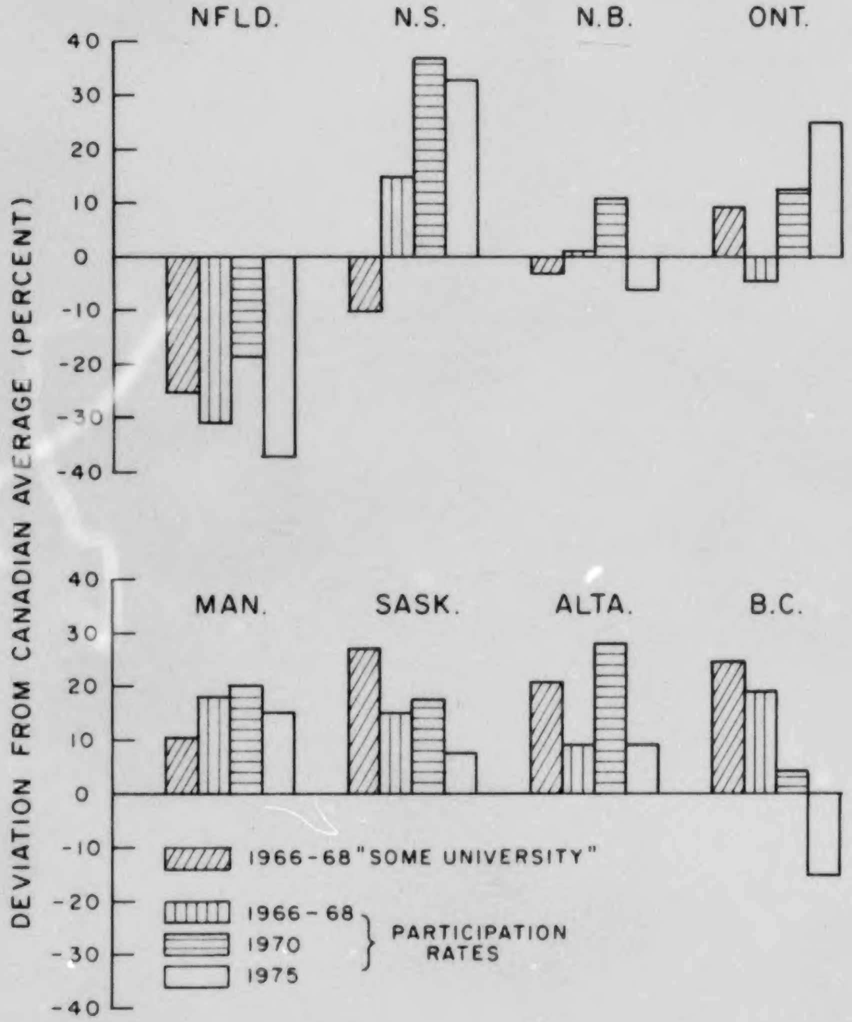
Interprovincial variations in university attendance (and, one presumes, in access to university) are depicted in Chart I-7. It will be observed that the PUST data do not correlate well with differentials in participation rates during the late 1960's. If there is any group of years where one would expect a close fit, these are the ones.

But the fit is poor. Why? A possible answer, of course, is that the census data are unreliable. Participation rates are likely to be quite reliable; the question is what they mean, and specifically whether one can use participation rates as an indicator of access to university. In my opinion one cannot.

For those provinces in which the participation rate

CHART I-7

INTERPROVINCIAL VARIATIONS IN UNIVERSITY ATTENDANCE



Notes: (1) This chart displays provincial deviations from the Canadian average in (a) 1971 census respondents aged

CHART I-7

Notes (concluded)

21 to 23 (i.e., aged 18 in 1966 to 1968) who had attended university with or without obtaining a degree, and in (b) university participation rates relative to the population aged 18 to 24, in three time-periods: the academic years beginning 1966 to 1968 (averaged), 1970, and 1975.

(2) Quebec is excluded from the chart because of the wide differential in levels of educational attainment among Anglophones and Francophones. See Chart I-6.

(3) Prince Edward Island is excluded from the chart because census data are not available (sample size too small).

Sources

(a) "Some university": 1971 census, Public Use Sample Tape. See Appendix A.

(b) Participation rates: Supplied by Statistics Canada. The rates here differ slightly from those published in Education in Canada (Cat. 81-229), various years, because of recalculation of participation rates in Quebec. Earlier published data classified some students at classical colleges as attending university; data used in this Chart do not.

seems to imply wider access to university than appears from the PUST data -- this is most clearly the case for Nova Scotia, Manitoba, Alberta, and to some extent for New Brunswick -- one may explain the differential by either or both of two factors. One is that students move into the province to attend university: this is evidently the case for Nova Scotia. The same consideration suggests, quite credibly, a net outflow of students in the cases of Newfoundland and Saskatchewan. But it scarcely seems credible that there would be a net outflow from Ontario and British Columbia.

For these provinces, another explanation is required. A likely one is that in Ontario and B.C. students stayed a shorter time in university. This is an inference one may draw from Chart I-6, which shows that both British Columbia and Ontario have a relatively higher ranking for university entrance than for graduation with a degree. The differential is marked in the case of British Columbia, which had a relatively open admissions policy for university and a high failure rate in the first year; the differential is less marked in the case of Ontario. In the latter province, however, it should be noted that three years is the standard time to obtain a general bachelor's degree in arts and science, compared with four years elsewhere. (To some extent the remark also applies to British Columbia, where some students took the first year of university-level instruction as a "senior matriculation" year in the high schools.) A shorter stay at university naturally lowers the participation rate, which becomes, when compared with the rate in other provinces, an understatement of university attendance.

For the above reasons I tend to regard the most reliable source of data on university attendance as being -- for the late 1960's -- the 1971 census. The data are reported in Chart I-6, with interregional variations being highlighted in Chart I-7. One infers, on the basis of changing participation rates (also displayed in Chart I-7) that during the 1970's the position of Ontario and Nova Scotia improved relative to other provinces, and that the position of British Columbia, Alberta, and Saskatchewan -- again, relatively speaking -- deteriorated. There was no marked trend for Manitoba, Newfoundland, or New Brunswick. Enrolment data for the French language universities of Quebec, although not depicted in Chart I-7, also suggest a very stong improvement in university access for Quebec Francophones (see Section 1.5.2.6, below).

Our detective work with the PUST data reveals a further oddity: information on university attendance ("some university") fits badly with information on the proportion of the 18 to 24 age group attending an educational institution in 1970/71. What is particularly striking in the latter figures is the low ranking of the western provinces, as reported in Table I-3, whereas these same provinces are at the top of a scale of educational attainment (Chart I-6 and Table I-2). This apparently fishy discovery is probably explained by a combination of two factors, both of which are highly relevant to our enquiry into access to university. One factor is the availability of apprenticeship and vocational training programs, adult education, and post-secondary instruction in institutions other than university (the attendance figures do not identify the kind of institution attended). The other factor is the length of time it takes students to complete the school curriculum.

The first of these two factors, the availability of non-university instruction for 18 to 24 year olds, may be relevant to the comparison between Nova Scotia and New Brunswick. It may also be held to explain Ontario's top-place ranking in attendance figures when it is in only fifth place in the "some university" category of educational attainment. On the other hand, it does nothing to explain the inversion of the expected positive relationship between the two sets of data in (a) the Maritimes as compared with (b) Alberta and British Columbia -- quite the reverse. All in all, I am not sure that the availability of non-university instruction at the post-secondary level is very important in explaining our puzzle; and it would take a good deal more investigation to establish the significance of this factor.

The second factor is the number of years it takes to complete university admission requirements. Newfoundland requires 11 years, Ontario and Quebec require 13 (in Quebec, 11 years of school and two of CEGEP), and the remaining provinces require 12. This certainly helps to explain discrepancies between a provinces's ranking in the attendance data and its ranking by the percentage of its youth who have embarked upon a university program. Less obvious, but probably just as important, are the structuring of high school programs and failure rates in school.

The more traditional provincial school systems emphasize the distinction between academic and non-academic programs, with only the former leading to university. They require

TABLE I-2

PERCENTAGE OF 18-24 AGE GROUP IN FULL TIME ATTENDANCE AT AN EDUCATIONAL INSTITUTION, 1971

Age	Province										
	Nfld.	N.S.	N.B.	Quebec Anglo	Quebec Franco	Ont.	Man.	Sask.	Alta.	B.C.	Can.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
18	47.0	70.0	62.2	66.7	54.2	71.4	57.6	55.4	57.4	55.8	61.5
19	25.9	56.4	51.5	49.7	41.5	50.1	48.1	44.0	41.9	40.4	45.5
20	16.5	32.8	29.6	35.7	28.8	38.1	28.6	28.6	34.1	30.4	32.5
21	15.5	21.7	25.9	23.1	18.4	26.9	23.5	20.6	22.9	23.0	22.9
22	16.0	14.7	12.5	16.3	12.8	22.4	18.6	16.4	16.8	15.4	17.4
23	4.6	9.8	7.6	12.3	10.2	15.0	9.8	10.3	12.0	12.6	12.1
24	6.5	5.6	4.3	8.8	9.0	11.2	5.3	9.1	7.1	7.0	8.9
18-24	19.2	29.4	27.9	31.1	26.2	34.3	28.2	26.6	28.8	27.7	29.6

Note: "Province" means province listed as "province of highest school grade".

Source: Canada Census 1971. Calculated from Public Use Sample Tape.

TABLE I-3

AGE DISTRIBUTION IN GRADE XII RELATIVE TO MODAL AGE, FOUR PROVINCES, 1970/71

	Above modal age (1)	Modal age (2)	Below modal age (3)
Nova Scotia	44.8	46.7	8.5
New Brunswick	47.3	40.9	11.8
Alberta	31.5	48.4	20.1
British Columbia	24.9	42.8	32.2

Source: Statistics Canada, Education in Canada, 1973 (Cat. 81-229), Table 40, p. 356. Data for Quebec and Ontario are not available from this source.

students to make early choices about the "stream" they will follow, and they tend to have great diversity in types of educational or occupational-training institutions. In some cases, students transfer from the regular schools to special purpose institutions before completing the high school curriculum. When this happens it lowers high school completion rates without necessarily reducing the number of years of schooling.

Relatively traditional systems thus tend to foreclose students' options at an early age and to reduce access to university correspondingly. The emphasis on academic achievement in the university-track programs may also involve higher failure rates than in more modern or "progressive" systems. It is notable that the western provinces, which have high educational attainment but low rates of attendance at school for the age group 18 to 24, seem to encourage rapid progress through the schools. Table I-3 illustrates this dramatically. It does much to explain the anomaly suggested by a comparison of Chart I-6 (attainment) and Table I-2 (attendence at an educational institution).

By picking up clues from our three sets of data -- the PUST data on attendance at an educational institution, university enrolment data yielding estimates of participation rates, and data on age distribution in grade XII — we can discover some surprising things about interprovincial differences in educational attainment and access to university. It is probable that prevalent impressions about interprovincial differences in these matters are formed on the basis of misleading data, and are subject to correction on the basis of new information, some of which I have attempted to provide.

To some extent the inter-provincial differences one observes can be explained by factors which are within the control of provincial educational authorities. Much has to do with the structure of school systems and the educational philosophies which underlie their operation. This is not a new discovery, but it is an essential observation in any examination of access to university. It also bears heavily on estimates of future enrolment trends at the university level.

1.2.2.2.2 Trends

It appears from Chart I-5 that high school completion rates rose much more sharply during the 1960's than did the rate of university admissions, i.e., that access to university was not measurably affected by the improvement in school retention rates. This, if correct, is a disheartening fact, especially considering the magnitude of public investment in the universities during the 'sixties.

We have a strange puzzle. The high school completion rate went up a good 50 per cent. The participation rate at university went up even faster: it doubled. But access to university -- if that is what the "some university" lines in Chart I-5 measure -- seems to have risen by only 25 per cent between 1961 and 1970. What does all this mean?

A possible inference is that a sizeable number of high school graduates embark on a university program only in their mid-twenties or later. If this factor explains the differential, we could expect an eventual increase in university attendance among those who were in their early or mid twenties in 1971. In other words, the trend line for "some university" in Chart I-5 would rise more sharply if, ten years hence, we reconstructed the chart on the basis of 1981 census data. Perhaps it would, but the difference would scarcely be great enough to resolve the puzzle.

A more plausible explanation is that the expansion and geographical extension of university facilities during the latter 'sixties permitted some older people, who had not gone directly from school to university, to do so later on. This amounts to saying that if the data for Chart I-5 had been collected annually during the 'sixties from those aged (say) 21, rather than in 1971 from those aged 18 to 30, the trend line for "some university" would have started from a lower position and risen more rapidly than the chart shows.

Both hypotheses suggest raising the angle of the trend line for "some university" but the first hypothesis implies that the line is too low at the right hand end (i.e., that it underestimates eventual access to university) while the second implies that the line is too high at the left hand end (i.e., that access was retroactively improved for a certain age group, but that access is not understated for those who left high school at the end of the 1960's or later). The two hypotheses are not mutually inconsistent -- both may hold, and may contribute to an explanation of the puzzle -- but it would be useful to know how heavily to weight each one. My hunch is that the latter is the preponderant explanation: that the expansion of university systems in the 'sixties retroactively improved access for those beyond normal university age.

If so, the hypothesized phenomenon would have had the effect of raising participation rates during the latter 'sixties. It would, however, have done so only temporarily. Hence, also, a partial explanation for the levelling-off or decline in participation rates during the 1970's. We shall return to this matter later (Section 1.3.2). In the meantime, it is important simply to note that the changing participation rates seem to suggest that Chart I-5 barely understates the present level of access to university for males and may even overstate it. For females, on the other hand, the situation appears to have improved noticeably.

1.2.3 ACCESS TO UNIVERSITY

Many factors influence a youngster's decision to complete high school in an academic "stream" and to continue to university — or to opt for other alternatives, including early employment. Parental encouragement, family income, geographical proximity to a university, quality of schooling at the elementary and secondary levels, and the person's estimate of his own academic ability and of his employment prospects are all relevant. Evidently, some of these matters are more directly related to provincial government policy than are others.

I have made no attempt to estimate the relative weight of the various factors which affect young people's choices on educational matters. Only one of them -- the financial one -- is relevant to the policy recommendations in this report; it is discussed in conjunction with fees policies in Section 3.4, below.

The data we have presented shows that, among the provinces, substantial variations in levels of educational attainment and access exist, and that Canada's performance in this respect is below that of the United States. However, it is doubtful that inter-regional or international discrepancies could be much reduced without modifying the standards and styles of pedagogy in the schools, and without introducing large changes in the design of provincial post-secondary systems. These matters ought to be, and presumably are, of lively concern to policy makers in the provincial governments.

For the purposes of this report, however, we must in the main take levels of access to university, and interprovincial differences in access, as given features of the situation. So far as we can tell, those factors which might induce a rise in university attendance are ones which are operative only in the longer term. Our survey of these factors does not lead us to expect any sudden or dramatic improvement in access and a corresponding rise in participation rates. This remark, however, takes us into the treacherous subject of enrolment forecasting, and we may as well paddle directly into these rock-strewn waters.

1.3 ENROLMENT PROSPECTS 1980-2001

All forecasts of university enrolments depend upon assumptions of two kinds: (1) the size, regional distribution, and age-composition of the population (demographic trends), and (2) university enrolments as a percentage of the population of normal university age (participation rates).

Participation rates are affected by education policy and by the practices of educational institutions; but since the prevailing aim of governments and universities is to extend access as widely as possible, policy is generally assumed to be constant, and people tend to forget that policy may affect participation rates. Educational forecasters usually regard the participation rate as unpredictable. They say it reflects individual choices, and that these are conditioned by changing moods among youth and by the economic weather, that is, by fluctuations in the business cycle. Planners, whose metier depends upon predictability (though with acknowledged margins of error) have frequently shunned the whole issue of changing participation rates. In some cases they have presumed that university enrolments will simply follow the demographic curves, though they may acknowledge that changes in the participation rate will introduce an unpredictably large margin of error into enrolment forecasts.

Standard forecasting procedures need correction on two counts. First, estimates of future demographic trends are subject to greater error than many people apparently suppose. Second, while participation rates cannot be manipulated at will, they may be substantially affected by policy, and changes in the university participation rate ought not to be treated as if they were inflicted upon poor mortals like university registrars and deputy ministers of education by the whims of fate.

1.3.1 DEMOGRAPHIC TRENDS

Population projections are not forecasts or predictions. They merely indicate what would happen if past experience in respect of birth, death, and migration rates were to persist into the future. Since birth and migration rates vary over time, the slice of the past which is chosen for projection into the future is critical to the results.

In the provinces and regions of Canada, birth and migration rates over the past three or five years differ substantially from those observable over a twenty or thirty year period. One cannot know whether one is now observing the beginning of a new long-term demographic pattern, or a temporary deviation from secular trends.

Our concern is with the population aged 18 to 24. The most recent Statistics Canada population projections are based on the 1976 census, so any change in fertility patterns will not affect the results of interest to us before 1994. Those who turn 18 in that year had already been born in 1976. Consequently, the last few years of our population projections, which take us to 2001, will be affected by the birth rates of the latter 'seventies and early 'eighties; but for the most part we can disregard birth rates as a source of error in those population projections which are of interest to us.

But beware! Population movements can invalidate any and indeed all demographic projections. To get a sense of this, I tested the projections made for each province from the 1971 census. The various projections were compared with the 1976 count. The most accurate of the four published projections showed the following result: in the age group 20 to 24 the margin of error was less than one per cent for four provinces (Nova Scotia, Quebec, Saskatchewan, and British Columbia); it was approximately two per cent for New Brunswick, Ontario, and Manitoba; and in the remaining three provinces it reached seven per cent or higher (too high for Newfoundland and Prince Edward Island; 10 or 12 per cent too low for Ablerta). Since young adults, especially males, are known to be under-enumerated -- some not counted -- the provincial figures were adjusted on the assumption that the projections for Canada as a whole were perfectly on target.

Thus, every attempt was made to run an accuracy test which would minimize and possibly understate error. Still, the projections for three provinces were at least seven per cent out in a five-year period. Accordingly, projections covering a period of 20 or 25 years must be discounted for a very large margin or error.

After this warning, we can look at the projections shown in Chart I-8, which displays the expected shrinkage and partial re-expansion of the age goup 18 to 24 over the years 1980 to 2001. Two projections were selected for inclusion in this chart. They employ different assumptions on fertility and on international and interprovincial migration. The latter are particularly important.

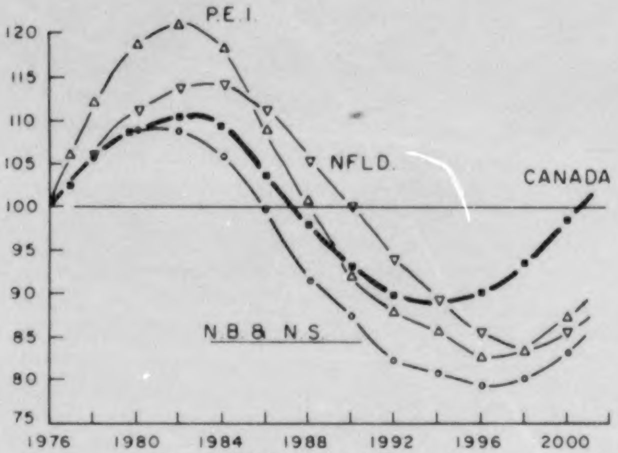
Projection #1 treats recent interprovincial migration patterns as short-term fluctuations, and supposes a return to the pattern observed during the 1960's; this assumption is "most favourable" to Quebec, Ontario, and British Columbia and is "less favourable" to the remaining provinces ("favourable" assumptions are ones yielding a high population projection). Projection #4 assumes that migration patterns observed in 1975 to 1978 will be maintained for the remainder of the century; this is the "most favourable" assumption for the four Atlantic provinces and is "least favourable" for Quebec and British Columbia. Another projection, not displayed in Chart I-8, suggests an accentuation of recent trends and thus an increase in the already high percentage of migrants going to Alberta and British Columbia (35 to 37 per cent); correspondingly, it suggests a decrease in the proportion of migrants going to Ontario. This projection is "most favourable" to Alberta and "least favourable" to Ontario.

One can play around a good deal with assumptions about prospective migration patterns, but a comparison of the two projections displayed in Chart I-8 nonetheless gives a good indication of how widely the results diverge, simply by varying the time period chosen for projection into the future. Assumptions about changing rates of economic development or job creation, to say nothing of changing political conditions, could produce even wider variation in projections without any of them being implausible. Moreover, if levels of educational attainment and attendance at university have much effect on economic development and therefore on migration patterns, then population levels and university enrolment levels may well be interdependent variables. In other words, it would be incorrect to regard

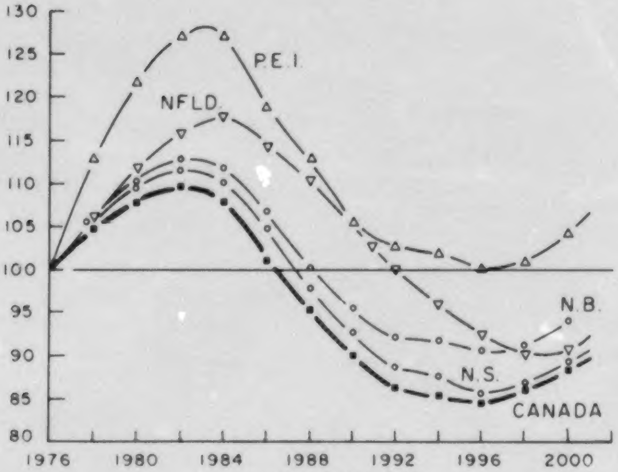
CHART I-8

POPULATION AGED 18 TO 24: PROJECTIONS 1976 TO 2001 (INDEX, 1976=100), FOR CANADA AND PROVINCES

PANEL A -- ATLANTIC PROVINCES AND CANADA



PROJECTION # 1



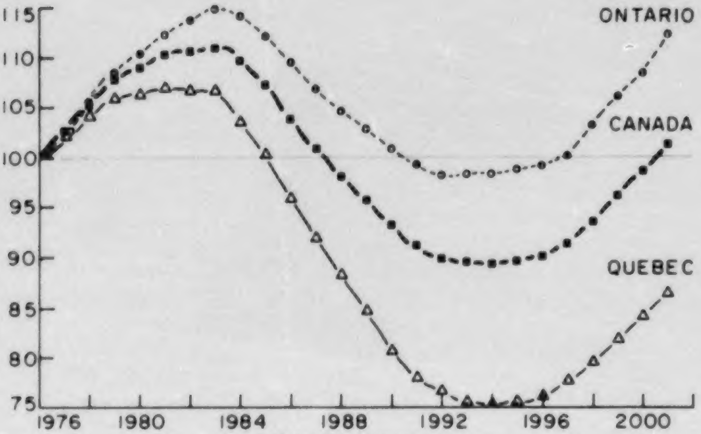
PROJECTION # 4

Note: In Projection 1, projections are almost identical for Nova Scotia and New Brunswick. The Chart accordingly shows a single curve for the two provinces. The curve was derived by averaging the two projections.

CHART I-8 (Continued)

POPULATION AGED 18 TO 24: PROJECTIONS 1976 TO 2001 (INDEX, 1976=100), FOR CANADA AND PROVINCES

PANEL B -- CENTRAL PROVINCES AND CANADA



PROJECTION # 1

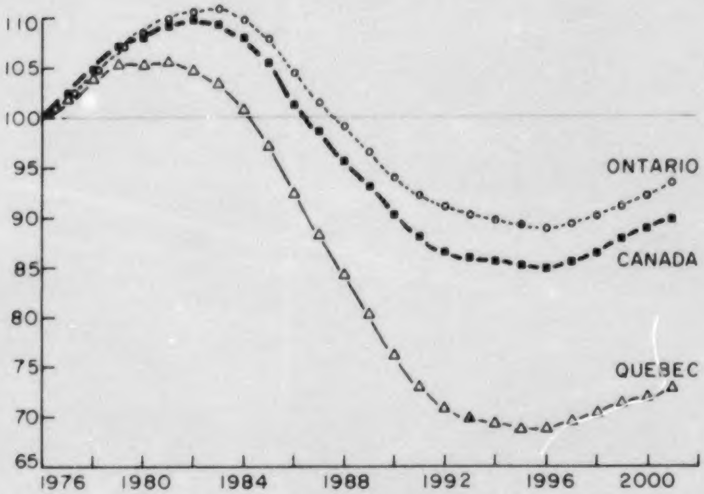
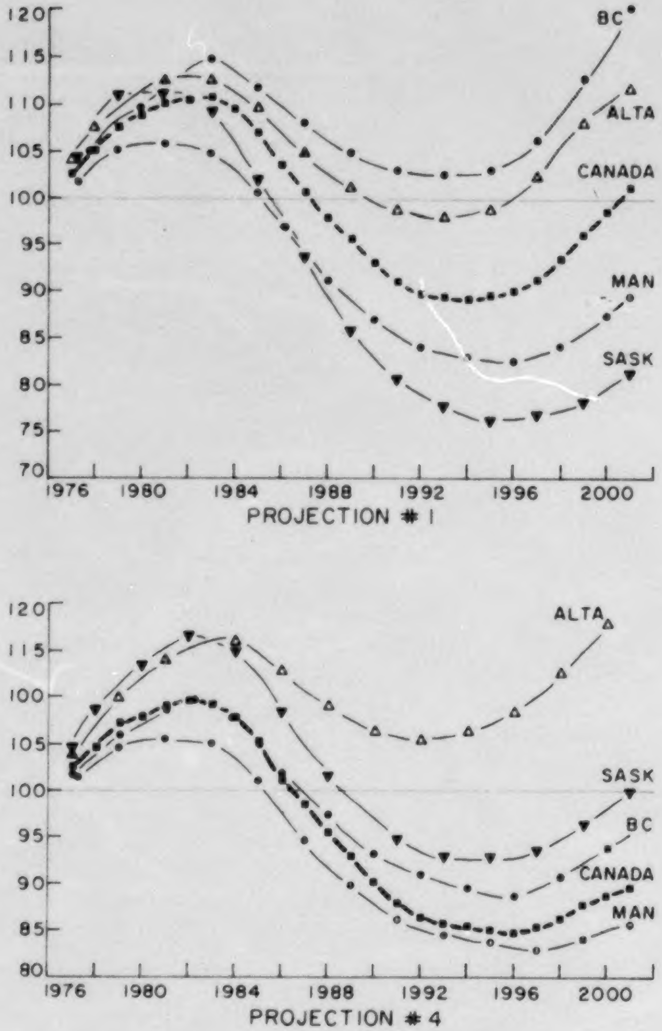


CHART I-8 (concluded)

POPULATION AGED 18 TO 24: PROJECTIONS 1976 TO 2001 (INDEX, 1976=100), FOR CANADA AND PROVINCES

PANEL C -- WESTERN PROVINCES AND CANADA



Source: Calculated from Statistics Canada: Population Projections for Canada and the Provinces 1976-2001 (Cat. 91-520 Occasional, 1979).

demography as an independent variable and enrolment levels as merely dependent on population size and other factors, which at first blush, may appear exogenous.

1.3.2 PARTICIPATION RATES

> We therefore would urge the Council to consider this simple fact: the rate of participation would have to increase by [to?] only 16 per cent to offset the entire decline in university enrolment which is projected for 1986. Given the history of the last two decades, a change of this magnitude for 1986 is entirely possible and realistic.

This statement, which is taken from a 1979 brief by the University of Toronto to the Ontario Council on University Affairs, is characteristic of one line of thought in the universities. Its adherents say that over the next decade or so the participation rate may rise, and that this would offset and perhaps nullify the impact of shrinkage in the size of the 18 to 24 age group. It is acknowledged that there will be, at least in most provinces, fewer people of normal university age; but (the argument goes) more of them may attend, they may stay longer, and more people over 24 may register for full- or part-time studies. The rosiest predictions would have it that a decline in "full-time equivalent" (FTE) enrolments may be avoided altogether.

Is this credible? To investigage this question I looked at trends in the participation rate since 1960, and I also calculated the participation rate which would be necessary to hold FTE enrolments constant in each province if the Statistics Canada projection #4 turns out to be accurate. The results are shown in Chart I-9. (Projection #4 is the one which employs assumptions "favourable" to the Atlantic and the prairie provinces and "less favourable" to Quebec, Ontario, and British Columbia. Readers who consider other assumptions to be more plausible ought mentally to make appropriate adjustments to the hypothetical rates for the years 1979 to 2001 in Chart I-9.)

This chart should be read in the knowledge that it is perilously easy to misunderstand all data on participation rates, because the commonsense meaning of the term is not the conventional one. To explain this, let us suppose that 80 per cent of all university students are aged 18 to 24. (This is the age group most commonly chosen as the base for calculating the participation rate.) "Participation rate"

CHART I-9

UNIVERSITY PARTICIPATION RATES, CANADA AND PROVINCES:

Actual Rate 1960 to 1978; and Hypothetical Rate Required to Maintain 1976 Enrolment Levels to 2001

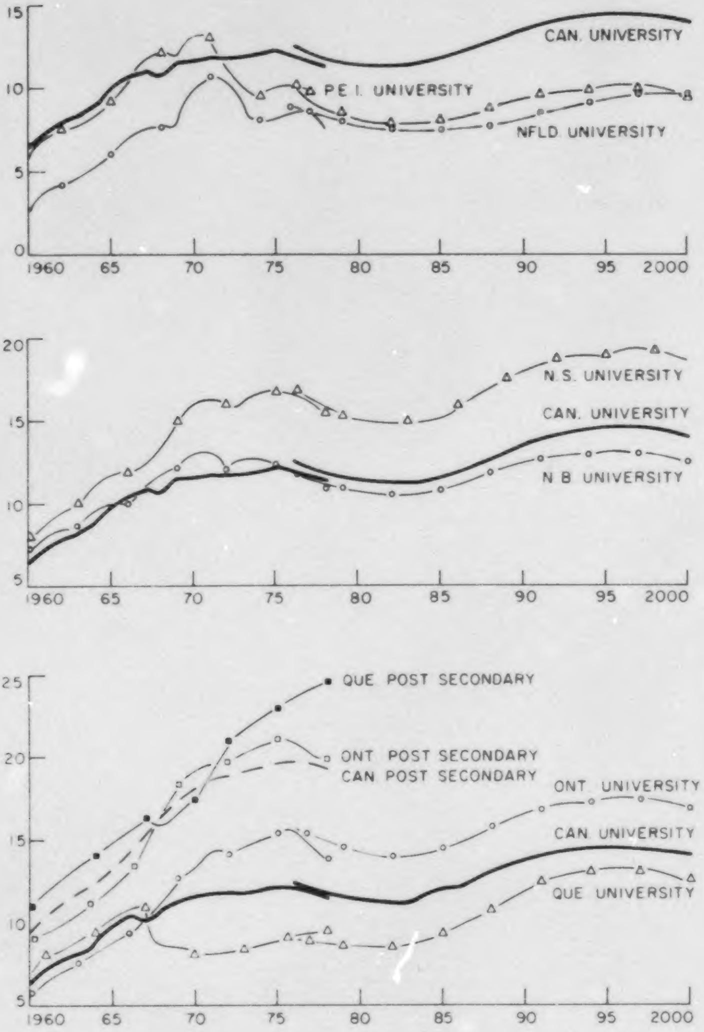
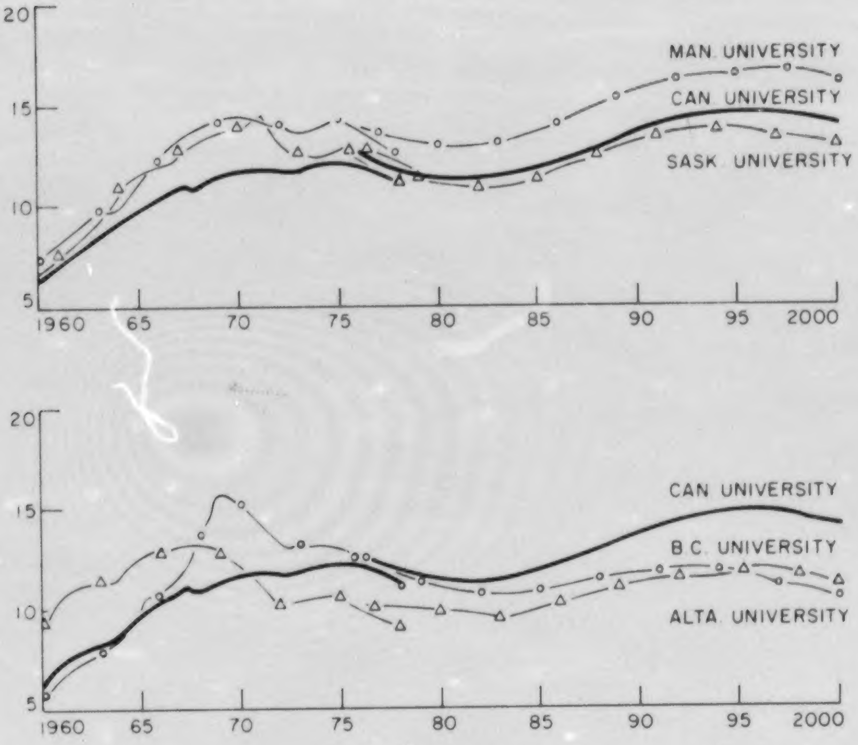


CHART I-9 (Continued)

UNIVERSITY PARTICIPATION RATES, CANADA AND PROVINCES:

Actual Rate 1960 to 1978; and Hypothetical Rate Required to Maintain 1976 Enrolment Levels to 2001



Notes: (1) Participation rates are calculated on the basis of full time fall enrolments in the year indicated, and total population aged 18 to 24.

(2) The participation rate required to maintain enrolments at the 1976 level was calculated assuming the accuracy of Statistics Canada population projection 4 (see Chart I-8).

CHART I-9 (Concluded)

Notes: (Continued)

(3) The existence of the classical colleges, and the creation of the CEGEPs towards the end of the 1960's, make the university participation rate in Quebec non-comparable with the rate in other provinces. For this reason, the Chart displays also the general post-secondary participation rate for Quebec, and includes comparable data for Ontario and Canada.

(4) Participation rates in this Chart differ in some cases from data published by Statistics Canada. For the period 1960 to 1970, the data were calculated on the basis of enrolments in university alone, whereas for this period the published StasCan data are based on enrolments in university-level programs of instruction, whether offered in universities or in non-university institutions. For the period 1971 to 1978, the participation rate was re-calculated by Statistics Canada on the basis of pupulation estimates which were revised after the 1976 census.

Sources:

(1) For 1960 to 1970, re-calculated from Statistics Canada; Education in Canada, 1973 edition (Cat. 81-229), Tables 54 and 55, pp. 394 to 405. The reason for re-calculating the data is given in notes 3 and 4 to this chart.

(2) For 1971 to 1978, supplied by Statistics Canada (revision of published data).

seems to mean, the percentage of the 18 to 24's attending university or (as the case may be) any post-secondary institution. The conventional usage among educational statisticians, however, is:

$$\text{participation rate} = \frac{\text{full-time students of all ages}}{\text{population aged 18 to 24}} \times 100$$

This formula inflates the participation rate beyond its commonsense meaning. For example, take a province in which there are 100,000 full-time students and one million persons aged 18 to 24. By our initial assumption about the age distribution of university students, 80,000 students are in the relevant age group, that is, eight per cent of the 18 to 24's are attending university on a full-time basis. By contrast, the participation rate is ten per cent. If the 80,000 figure remains unchanged, but the number of students outside the age group doubles (from 20,000 to 40,000) the student population rises to 120,000 and the participation rate goes up to twelve per cent. Additional complications arise when an attempt is made to take account of part-time students.

Participation rates rose sharply, as is evident from Chart I-9, during the 1960's. Except in Quebec, where the replacement of the classical colleges by the CEGEPs largely vitiates both intertemporal and interprovincial comparisons, the participation rate approximately doubled in every province. A noticeable differential, however, has remained among them. The history of the 'seventies has been rather different from that of the previous decade, as participation rates levelled off, fluctuated, or declined after 1970 or 1971.

During the 1980's the absolute size of the 18 to 24 age group will decline in most provinces. Thus at least a partial return to the rising trends of the 'sixties would be required to maintain university enrolments at current or recent levels. Chart I-9 gives some idea of the magnitude of the change which may be required in each province. These estimates, however, ought not be taken too seriously since they are based on a single population projection.

Notwithstanding the inevitable and probably large errors in forecasting the "required participation rate" for each province (mainly because patterns of interprovincial migration are not readily predictable), Chart I-9 almost certainly shows that most provinces would require an unrealistically high participation rate in order to maintain constant enrolments over the next twenty years. In other words, university enrolment is bound to drop in some and conceivably in all provinces, although there may be some surprises about which provinces are most affected.

Increases in the participation rate may indeed come about. Such a change might raise the absolute level of university attendance in some provinces, and it would certainly offset the diminution in the 18 to 24 age group where it occurs. Is an increase likely? We cannot answer the question, but our judgement in this matter is likely to be improved by a quick survey of the factors which might raise participation rates.

--Higher retention rates in school, in university-track programs. The number of young people who are eligible to attend university is severely restricted by school drop-outs and by the choice of non-academic programs. Parental attitudes, students' estimates of their own academic ability, students' confidence in their career prospects as well as in their financial ability to attend university, and the educational philosophy and practices prevalent in various provincial schools systems, all affect completion rates in the academic "stream". (See the data on educational attainment, and commentary, in Section 1.2, above.)

--Reduced financial barriers to attending university, a factor obviously related to student aid programs and knowledge of their existence. Also relevant, however, is the availability of summer or part time employment for students -- a consideration which leads many people to suppose that low unemployment levels will increase university attendance. This supposition may be unwarranted, since the availability of employment opportunities may also draw students away from university, i.e., low unemployment rates increase the opportunity cost of attending university (foregone earnings are higher). Indeed, it seems likely that fluctuations in the business cycle affect university attendance simultaneously in both directions, with "good times" increasing access for young people from low-income families while diminishing the frequency of attendance among those from more favoured backgrounds (especially in graduate degree programs). On the other hand, the diminution in the number of young people coming onto the labour market in the mid-'eighties and beyond may increase the value of scarce skills, and thereby raise the financial returns to higher education. This would provide an additional financial incentive to attend university, and would raise participation rates.

--A continued rise in female participation rates. Between 1971 and 1977 the female participation rate in Canada rose from 8.7% to 10.4%, a change which exactly offset a corresponding decline in the male participation rate (15.4% to 13.6%). The higher rate for females presumably reflected improved employment opportunities and a change in cultural attitudes. Nonetheless, a relatively wide differential still obtains in Ontario (about 4%) and in the prairie provinces (about 3%). If male rates returned to the levels that existed in 1970, and female rates remained at their 1977 levels (or, of course, if they rose to match male rates), a significant overall rise in the participation rate would result.

--An increased tendency to choose university over other forms of post-secondary education. Unemployment, or more commonly underemployment, among university graduates appears to have caused a fair number of young people to opt for vocationally oriented programs of instruction offered by community colleges in preference to a general undergraduate education in the arts and sciences. This tendency may be accentuated in the future, or may be reversed. Factors potentially leading to a relative resurgence in the popularity of universities are: (a) persistent evidence that university graduates still have better employment prospects than other people entering the labour force, including diploma-holders from vocational courses offered in the colleges, and (b) the prospective decline in the number of young people coming onto the labour market from the mid-'eighties onward, possibly re-establishing a "seller's market" for university graduates such as existed until recently. The relative number of high school graduates going to universities rather than to colleges may also be affected, of course, by the universities' admissions policies.

--A lengthening of the number of years spent at university. This is probably the factor most directly under the control of the universities themselves, since a lengthening of degree programs and a lower failure rate in university would have the effect of retaining students and raising the participation rate correspondingly. The apparently high rate of attrition in university programs, observable from the data on educational attainment (above, Section 1.2), indicates that this factor is potentially of great importance. Academic standards and the design of university curricula are relevant here. Additionally, the number of graduates who proceed to postgraduate study could noticeably affect participation rates.

--Changing interprovincial migration patterns also affect participation rates. This is obvious when a province experiences a net influx of students, as is the case with Nova Scotia and Ontario, or when a province expands its educational facilities and consequently retains a higher proportion of its university students (surely the case with Newfoundland, and probably with Alberta in the latter 'sixties). A little less obvious is that a province may experience in-migration of young workers, expanding the size of the 18 to 24 age group. When this happens, even if the number of university enrolments remains constant, the proportion of the 18 to 24's attending university nonetheless declines. This factor may well have been important in explaining the decline in Alberta's participation rate during the 1970's (Chart I-9).

--An increase in the number of part time and mature students. As noted earlier, the participation rate is raised when an increasing number of people outside the age group 18 to 24 attend university. This factor could be important, particularly among females, as the age composition of the population changes. Moreover, an increase in the number of part time students, though it would not affect the participation rate (at least as defined here), would increase the number of enrolments. Still, it should be remembered that it takes three or four part time students to make one full time equivalent, and thus a very large surge in part time studies would be required to make up for a decline in the number of full time students. Recent trends indicate rather stable patterns of part time enrolment, and the prospect for any substantial impact on enrolments, due to an influx of part time students, seems rather dim.

1.3.2

1.3.3 FORECASTS

The preceding review of factors affecting participation rates may be thought to have demonstrated the futility of trying to make any enrolment forecasts at all. I myself do not hold this view, though I would be happy if the reader were convinced of the unwisdom of assuming that enrolments will follow whatever demographic curves some researcher has put in front of him. Beyond that, I think that a run-down of the factors affecting participation rates may be useful as a reminder of what ought to go into any careful enrolment forecast.

The prudent procedure would be to make, through a discussion of these factors, a range of plausible forecasts, and in this way to obtain a sense of the variety of situations which may face the universities over the next two decades. Arrangements for the financial support of the universities will have to take account of the uncertainty implied by having a fairly wide range of forecasts. It is no use preparing to cope with a single "most likely" scenario, if that scenario still has only one chance in five of being accurate within 15 per cent.

Estimates of future enrolment trends have been made for every part of the country, though sometimes they cover only the very short term. In addition, they usually offer no more than a single forecast. We shall look at them, such as they are, in context with a more general examination of the changing structure of post-secondary education in each province (Section 1.5.2). In the meantime, it is clear from the evidence so far adduced that enrolments are likely to decline, perhaps drastically, in most regions. Before looking at the situation on a province-by-province basis, we would do well to spell out some of the problems of no-growth or shrinkage which are not specific to any particular place. These problems, where they occur, cannot be entirely avoided. They may, however, be attenuated by the adoption of appropriate financing techniques, and unfortunately they may also be exacerbated by inappropriate ones. Accordingly, some preliminary reflection on the problems of no-growth or shrinkage is highly germane to our examination of university finance.

1.4 PROBLEMS OF NO-GROWTH OR SHRINKAGE

In any organization, contraction is a painful process, but in universities, the difficulties experienced in a period of shrinkage are probably especially acute. It is facile to say, observing this, that their structures are cumbersome or that the conventions affecting their governance make hard decisions even harder: these things are probably true, but excellence in university teaching and research demands a form of decision-making which most institutions would find ineffective and -- in view of their functions -- quite intolerable. No business corporation could survive if run like a university. But equally, no university could achieve high standards in teaching and research if run like Alberta Gas Trunk Line or Northern Telecom.

The main reason for this is that universities exist primarily to provide individuals -- students and faculty -- with the facilities and opportunities for advanced learning and instruction, and to do first class research. In both aspects of the business of the university, teamwork may be essential; but it is the sort of teamwork which is important because of the qualities it develops in each person, not because it harnesses individual capacities to achieve organizational goals. Indeed, the word "achievement" as applied to a university rather than to its faculty and students is a hollow phrase, and necessarily implies the mediocrity which attention to "output measures" both presumes and engenders. Universities do not process students or manufacture education; nor are tons, or barrels, or boxed units of research findings milled through their laboratories and computers. Quality is of the essence. Accordingly, only the subjective judgment of peers can estimate achievement. This is why collegiality rather than hierarchy is the main organizational principle in all academic institutions of repute.

The costs of collegiality are substantial, and they are a contributory factor in the difficulties experienced by universities during a period of no-growth or falling enrolments. Such costs cannot be entirely avoided without destroying the university's potential for fostering excellence, though they can and must be minimized.

There are also rigidities, or factors which hamper adjustment to changing circumstances, which have nothing to do with university structures and the norms of their internal governance. Universities experience difficulties of adaptation to declining scale not experienced to the same degree by business corporations or public bureaucracies, because of the nature of the tasks in which they are engaged. Let us see why.

1.4.1 REALLOCATING RESOURCES

In a period of enrolment decline the universities will quite rightly draw attention to the fact that they perform research and public service functions as well as offering advanced instruction. They will insist that their incomes should not be directly proportional to the number of students enrolled. This claim will be buttressed, again rightly, with the argument that they have expenditure commitments which are either totally unrelated to student numbers or from which even efficiently administered institutions can only slowly free themselves.

The validity of these arguments notwithstanding, it is politically inevitable that university budgets will be crimped by falling enrolments. It is thus impossible to distinguish the problems of prolonged austerity from a condition of nogrowth or decline in the number of students at university.

The contraction will pinch unevenly: there will be differences among provinces; within a single province, some universities will bear the brunt of an overall decline in enrolments, while others may experience relative stability; and within individual institutions some faculties and departments will experience the pressure of increasing demands upon their resources while other parts of the university undergo a sharp decline. Indeed, even if enrolments are steady across the university as a whole, this stability will mask internal readjustments as some programs attract more, others fewer, students. Thus even in a no-growth situation, reallocation of resources among and within universities will be called for. For this reason, the problems of no-growth are not qualitatively different from those of declining enrolments, though of course there are important differences of degree.

A business firm which is in financial difficulties can undergo reorganization of various kinds: it can discontinue unprofitable product lines or services, close down a plant, secure its sources of supply by vertical integration, merge with another firm to share distribution facilities, subcontract some of its obligations, diversify its product line, or have recourse to other measures. Few analogous expedients, however, are open to universities either individually or as a group. A specialized degree program may be closed, but the savings from doing so may be minimal and the impact on other programs, departments, or faculties may be deleterious. Often the only available expedient is to cut out low-enrolment courses if the instructors can be reassigned to other courses where the pressure of numbers is greater. This, however, does not deal with the problem of an overall decline in enrolments within a university or within a particular department.

Currently prevalent economic doctrine places a heavy emphasis upon the transferability of resources among alternative uses; it presumes the mutual substitutability of labour and capital, and supposes that both capital and labour can be turned to a variety of employments. There is, however, some disagreement about this. One school of economists denies that real capital (unlike money) has a "putty-like" quality that permits it to assume any desired shape or configuration; but whatever the merits of this view for the economy as a whole, clearly the human and physical capital which has been acquired by the universities during a period of growth is not "putty" which can be fitted into any desired niche. An astrophysicist cannot be retrained to teach molecular biology, and only the simplest forms of equipment can be used for any purpose but the specific one for which they were designed and built.

It follows that what may be called for during a period of stable or declining enrolments is not a form of action modelled on techniques of corporate reorganization in which productive workers are assigned to new tasks. Possibly, in a university, the only efficacious action would be an overall reduction of scale accomplished by firing even highly competent staff and (depending on the circumstances) hiring differently-qualified replacements.

Firing employees is a task which, in the case of private enterprise, is not only distasteful but hedged about by legislative restrictions and contractual obligations; for public bureaucracies it has proven patently impossible. Can the universities do it? Ought they to be expected to do it? We shall return to these questions. First, however, we should note that easing out superfluous talent is only one aspect of the staffing problems facing Canadian universities.

1.4.2 STAFFING PROBLEMS

> It will be a disaster in both human and economic terms if Canada loses an academic generation because of lack of employment opportunities. (M.A. Preston)

The most serious problem facing Canadian higher education is the prospective aging of university faculty; its greatest challenge, to avoid the loss of an academic generation. When the universities were expanding rapidly, large numbers of the most talented undergraduates planned on careers in teaching and research; they strained the capacities of the graduate schools, and the liveliness of academic departments was hugely increased by the constant infusion of new talent, both students and younger faculty. Moreover, established scholars were assiduously courted by expanding departments; movement among the universities was considerable. By contrast, a situation of no-growth may mean that few or no younger faculty are hired, that the most able youth no longer go to graduate school, and that the circulation of senior faculty among the universities slows considerably. In these circumstances, demoralization can easily set in,and scholars who under more favourable conditions would be productive researchers and stimulating teachers may lapse into mediocrity.

Difficulties of this sort are likely to be the more acute because Canadian universities now have a relatively young faculty, recruited during the period of rapid expansion, and very few faculty (less than 20 per cent) aged over 50. Consequently there will be very few retirements in the next few years; one recent estimate predicts that, assuming a constant figure of 30,500 full-time faculty, only 400 to 500 replacement positions will become available during the early 1980's. This represents a replacement rate of approximately 1.5 per cent (Von Zur-Muehlen, 1977: 17). Another study, absurdly given a government security classification and therefore not to be cited, anticipates a decline in the number of new entrants into the professoriate from almost 1800 in 1977 to 100 or less in 1988, and then a fairly steady rise to about 1500 in 1999. This study took into account prospective enrolment changes and possible changes in student-teacher ratios, and thus differs from the Von Zur-Muehlen study in abandoning the assumption of a constant "stock" of faculty; it also takes into account resignations of faculty of pre-retirement age, as the Von Zur-Muehlen study did not.

Although the number of replacement positions is difficult to predict with any accuracy, it is nonetheless clear that during the next decade the influx of new talent will be minimal, and that the median age of the professoriate will increase steadily. This may present a particular threat to the quality of research since in some disciplines the most remarkable advances are typically made by younger scholars.

If the universities' research capacity declines, this will have a serious impact on scientific and technologocial achievement in Canada. Additionally, it will pose a threat to the universities, because it will encourage the establishment of non-university research institutes which could hire new talent while the universities are stuck with an increasingly stale faculty. The research insitutes, under these circumstances, could easily surpass the universities in the quality of the work they do, particularly if the research institutes find adequate sources of finance. Non-university people would probably be less good at research, at least in some areas, than if they had regular contact with students, but they would be better than an aging faculty. This in turn would encourage the gradual separation of the teaching and research functions, and a redefinition of the university's role to encompass only teaching. The effect on the quality of instruction would be appalling.

An obvious response to this dismal scenario is to suggest that the universities gradually divest themselves of all but the most able faculty, and hire the best of the recent doctoral graduates to fill whatever percentage of the vacancies their budgets will allow. The suggestion is simplistic but nonetheless points to the necessity of achieving some turnover of staff. The problem of supernumerary staff is a Gordian knot which can be cut only at the cost of excellence, but imperatively must be unravelled.

What makes the suggestion for firing unwanted or inept faculty a simplistic one is not just that tenure, collegial decision-making, and a commitment to academic freedom make the dismissal of staff administratively awkward. What is simple-minded is the thought that these conventions and the principles of the governance of the universities can be hacked down without sacrificing academic excellence, when financial stringency requires it. They cannot; and this, for a very simple reason. The academic judgment of departmental chairmen, deans, and presidents is almost certainly inferior to that of the individual scholar in the area of his expertise. This does not mean that the university must abjure all effort to assess faculty performance in research as well as in teaching; it means simply that in scholarly activity only the judgment of peers working in closely related subject areas can be relied upon. Evidently, universities have not yet resolved the problem of how such judgment can be brought to bear on the excruciatingly difficult decisions which must be made in a period of contraction or of no-growth. Nor will faculty unionization and adherence to "due process" in staffing decisions make the task any easier.

1.4.3 FACILITIES AND EQUIPMENT

As university incomes drop, in real terms, the pressure to utilize the greatest possible proportion of available funds for faculty salaries is intense. Already there is not a university in Canada which has not cut back its equipment and supplies budget, with a consequent deterioration of laboratory facilities, library services, and other resources which faculty require if they are to work effectively. The problem was greatly exacerbated during the 'seventies by federal cutbacks in research funding, which previously had supplied the major part of certain types of equipment without imposing a burden on general-purpose operating funds. The Natural Sciences and Engineering Research Council is very much aware of the seriousness of this problem, and plans a major program of re-equipment of university laboratories (see Section 2.4.2.3.2, below).

The effect of financial stringency on equipment budgets need not be insisted upon; it has been documented in every university's submission of requests for public subsidies. One observation, though does , need to be made: cutting back on all forms of non-salary expenditure cannot be regarded as more than a temporary and very partial solution to penurious conditions; continued recourse to cutting budgets for equipment and supplies, libraries, secretarial services, and so forth will make it impossible for staff to do their work, and the most productive of them will surely seek employment elsewhere or, lacking alternative employment, will waste their talents.

1.4.4 ADMISSION STANDARDS AND CURRICULA

Those universities which are most vulnerable to declining enrolments may try to compensate by recruiting students who in an earlier period might not have been accepted for university. In part this might be achieved by lowering entrance standards; but its other aspect is the tailoring of university curricula to suit essentially non-academic and even anti-intellectual tastes. The tendency may be all the greater when there are other post-secondary institutions offering technical and vocational instruction; the two sorts of institution may come into increasingly tight competition with each other, and governments may be called upon to arbitrate between them by defining roles appropriate to each.

1.4.5 ACADEMIC FREEDOM

Academic freedom means having opportunities for the pursuit of truth and knowledge according to one's lights, and being able to express opinion without thereby hoping to obtain favour and equally, without the fear of incurring disfavour. Academic freedom is an essential condition of all scholarship, for faculty and students alike. Conformist behaviour and the sanctity of received doctrine are its enemies.

The most crippling attacks on academic freedom in the modern university have occurred at times of political crisis, often under the leadership or stimulus of political authorities, but with the active support of the majority of the colleagues and students of dissentient scholars. Instances, varying in their severity, are provided in the history of the Dreyfus case in France, of Germany between the wars, of the Soviet Union under Stalin, of the McCarthyist movement in the United States, and of contemporary South Africa.

Academic freedom in Canada, seen in relation to cases such as these, is unlikely to be imperilled by financial stringency or by cost-reducing exercises involving the extension of state administrative controls over the universities. Present and foreseeable threats to academic freedom in Canada do not issue from the repression of politically or socially unacceptable doctrine or even of theoretical heterodoxy.

Nonetheless, financial constraints, with their consequences of depressed academic salaries and a severe shortage of research funds, can and predictably will restrict the range of scholarly enquiry, and direct it towards unpromising and intellectually barren objectives. It has been noted (Smith and Karlesky, 1977: 37) that in the United States,

> ...the emphasis on targeting [of research funds] may be part of a larger tendency toward "playing it safe," toward conservatism in funding practices. Many researchers expressed the view that research proposals by established investigators, within established lines of enquiry and promising short-run and politically defensible returns, were receiving increased emphasis at the expense of more innovative proposals.

It was also noted by the same investigators that graduate students tended, in view of slighter employment prospects, to choose "safe" dissertation projects from which publishable findings were assured in preference to more speculative lines of enquiry that carried higher scientific promise.

The danger to which I wish to draw attention is a buying off of creative capacity in the definition of research projects; another aspect of the same process may well be the encouragement given to some faculty to take on income-supplementing contract work as salary increases drop below inflation levels. The restriction, in these ways, of the areas in which scholarly enquiry is undertaken is qualitatively different from repression by the state apparatus; but its effects in relation to scientific investigation and humanist enquiry are nonetheless deleterious.

1.4.6 THE SCLEROSIS SCENARIO

Organizations do not lose their suppleness because they want to. On the contrary, if development ceases and structures rigidify these things happen either because those who control the organization do not see what is going on or because they are powerless to prevent it. In adverse circumstances they may carry on as much as possible as before, and hope that retrenchment will be a passing phase, that a new period of élan lies just ahead. This is, by and large, the present situation of the universities in Canada. If conditions do not change, and retrenchment becomes a permanent condition, it eventually may be discovered that the universities have suffered (to use a medical analogy) sclerosis: a morbid hardening of the tissue.

In a period of financial stringency, the intitial response of Canadian universities has been to try to strengthen their position by recruiting students as best they may, but otherwise to carry on as much as possible as before. They cut down on their facilities, equipment, and supplies budgets, on library acquisitions and library services, and on secretarial assistance. In general, they cut back in areas where a couple of years' deterioration could be made up later on without serious loss. They do so, knowing that prolonged withholding of these supplies and services would seriously impair the effectiveness and quality of the work done by their staff, but hoping for better times.

Another feature of what we may call a first-level response to budget stringency is to cut back on, or freeze, the hiring of new staff, to fire sessional appointees, and to reduce the number of graduate student assistants. The staff in turn, cut down on the number of assignments and thus alleviate marking loads; class sizes are increased (necessitating further reductions in assignments, and perhaps including more superficial marking of assignments); seminars are replaced by lecture courses. There may also be, in order to protect the reputation of the university, demands on staff for increased evidence of professional activity, especially publication, and thus a reorientation of research priorities to safer and duller topics.

All this forms part of the familiar litany of complaints by universities and their faculty; I mention it here only because the principal consequence of these actions -- apart from lower standards of performance in teaching and research, which government decision makers seem either not to believe or not to care about -- is incapacity to develop new disciplines, to establish new faculties, departments, or programs, and inability to follow up promising lines of research. Not all Canadian universities have yet been forced into this position, which incurs sure sclerosis. But it is, everywhere, a clear and present danger.

Another type of response to conditions of no-growth, or to a shrinkage in enrolments, is structural change. This means cutting out some courses, programs, faculties, or schools in order to free financial resources for development in other areas. The savings, however, may be minimal in the short run because students enrolled in a program must be able to complete it and because redundant staff are seldom transferrable to other duties. Moreover, physical facilities may not be usable for other purposes without refitting or renovation. Indeed, if university incomes are directly proportional to enrolment, the elimination of even a low-enrolment program may entail additional costs for the university, as revenues fall off without there being a comparable saving in expenditures.

Naturally, the savings that are achieved will depend very largely on the university's staffing policies. If universities could solve the problem of staff redundancy then the need to discontinue programs would be much reduced. Conversely, if they cannot solve their staffing problems then structural change may not accomplish much.

1.4.7 GOVERNMENT CONTROLS

The provincial governments bear the main financial burden in higher education. They also feel politically bound to maintain and (especially in non-metropolitan areas) to extend access to universities and to technical colleges, to protect institutional and regional or local interests, and to avoid openly repudiating policy decisions taken during a period of growth. These factors, individually but especially in combination, impel the provinces to oversee major university financial decisions and to direct the growth or contraction of provincial systems of post-secondary education. Their concern extends to the efficient use of manpower and financial resources in the universities, the incurring of future financial liabilities, and the selection of university priorities (for example, as between instruction and research, between graduate and undergraduate instruction, or among specific academic and vocational programs). Moreover, governments are very often vitally concerned to protect the position of a university or college which is experiencing financial difficulties whether from declining enrolments or other causes.

In the result, today no university in Canada retains full control over its academic programming. Many find their admissions policies and their financial management coming under the scrutiny and the partial control of the provincial governments or their agents. Inevitably, the compromising of university autonomy restricts each institution's capacity to sort out its own financial difficulties, to define and perhaps to reorder its academic and budgetary priorities, and to use its resources as it judges most conducive to excellence.

It is not only possible but likely that over the next few years government controls will tighten as enrolments fluctuate or decline and as other governmental expenditure priorities assert themselves. Existing financing techniques -- to anticipate the argument of Chapter II -- encourage university administrative officers to adopt a strategy of general budget compression rather than to redefine their priorities and to accept and promote significant structural change. In the absence of such change governments are likely, as the situation becomes more acute, to draw the administration of the universities into their own hands. This is not, I think, a present intent; but it may be, fatalistically, a consequence of the evolving situation.

In my opinion, governments and their agents or advisors are unrealistic and indeed unreasonable if they believe that present techniques of liaison and control, and present policies for the financial support of the universities, will encourage the structural changes they desire. If such changes do not occur, as it were, voluntarily, then an extension of direct controls is virtually unavoidable, even though at present no provincial government proposes the management of the universities directly by the crown.

Nonetheless, the situation varies considerably from one province to another, and of course the circumstances in which individual universities find themselves also are varied. Generalizations on these matters lack nuance as well as supporting evidence. For these reasons the next section looks in some detail at the recent evolution of post-secondary education systems in Canada and at some of the necessary or desired changes, province by province.

1.5 THE CHANGING STRUCTURE OF CANADIAN POST-SECONDARY EDUCATION

Our mandate is to make such recommendations for the financial support of Canadian universities as will conduce to excellence in teaching and research. One cannot, however, adequately explore the relationship between university finance and university excellence without considering also the structure of university systems. This is so, because each university's potential for excellence is affected by its being one of a group having certain structural characteristics. The group, or system -- the term does not neccessarily imply either conscious design or central control -- is in constant evolution; as enrolment patterns and other circumstances change, the adjustments which must be made by the system as a whole will have a differential impact on each of its members, the universities. Hence there is a three-way relationship involving finance, structure, and quality of performance. This report takes into account all three.

It is essential, as we embark on an exploration of this three-way relationship, to recall that the provincial governments bear the main responsibility for education in Canada, and that the fulfillment of their responsibilities in education cannot be compartmentalized such that policy is formed independently for each type of institution. All provinces have taken the position that they must assure their residents access to high quality education at all levels, but each has chosen to meet this objective through a distinctively structured set of educational institutions. Each province has assigned particular functions to its secondary schools, technical institutes, community colleges, and universities. Each one has its own solution to the problem of serving the needs of the population in remote areas, whether by territorial dispersal of universities and colleges, or by the provision of "extension" or "outreach" programs, or both. Each province, too, has its own ideas about university specialization and/or differentiation of role; some think in terms of system rationalization and the allotment of a specific role to each university.

In view of the importance of provincial educational planning, and because in some provinces policy makers tend to focus on the post-secondary sector as a whole rather than on the universities alone, this report must to some extent do likewise. Our main concern, of course, is with the universities. Nonetheless, where the universities are merely one segment of an integrated post-secondary system, it would serve little purpose for us to view them out of context with related institutions. Consequently this section deals with the structure of the post-secondary sector as a whole.

The analysis and argument presented in the remainder of this chapter run as follows:

--In Canadian higher education, the main emphasis has been on minimum standards and universal accessibility rather than on building universities with a world reputation. In the result, there has been dispersal of resources, which makes specialization difficult and militates against the attainment of excellence, particularly in research.

--While many universities retain de jure private status, the provincial governments effectively control and direct the development of university systems. Instruments and techniques of control vary considerably, reflecting diversity in policy preferences and in the number, size and character of institutions in the post-secondary sector.

--Voluntary cooperation or coordination among universities is rendered difficult by their being in competition with each other, especially as regards the introduction of new academic programs. The older and larger institutions seek to preserve an established position vis-a-vis other universities of like character, often in other provinces; they are correspondingly concerned about the dispersal of financial resources among universities within their own province. By contrast, many of the newer universities are anxious to diversify their programming and to share the field equally with the traditionally leading universities. They chafe at restrictions on their further development.

--Expectations about future enrolment patterns vary considerably from one province to another, but broadly speaking, forecasts seem rather more optimistic than appears justified on the basis of demographic projections and realistic suppositions about future participation rates. Governments and their agents are frequently, though not uniformly, less sanguine about enrolment prospects than are the universities, especially those which wish to diversify their academic programming as part of a catching-up exercise.

--The provincial governments, which initially became committed to the development of the universities in order to extend access while maintaining or raising standards of instruction, are now primarily concerned about saving money, which they hope they can do without unduly sacrificing the earlier objectives. Accordingly, they stress the need to "rationalize" university systems without, if possible, themselves becoming too involved in university administration. The prospects for simultaneously accomplishing these two objectives -- control and the avoidance of direct management -- depends largely on the incentives which the universities individually have to make tough decisions on academic programming and to cope with their staffing problems.

--In the absence of appropriate incentives, the extension of government controls over the universities in order to save money will become virtually inevitable. The reversal of two decades' growth in enrolment will play an important role in this. Further erosion of university autonomy would seriously exacerbate the problems of no-growth or shrinkage, with a strongly adverse impact on university excellence.

The exposition of this argument, and the suspicion, which has been voiced among others by the Ontario Council on Graduate Studies, that the universities at present have very little incentive to take hard decisions, leads directly to the subject of Charter II. There, each of the sources of university income is examined in turn to see what impact it has on the development of individual universities and university systems.

1.5.1 CANADIAN UNIVERSITIES: SOME GENERAL FEATURES

It is difficult to generalize about the characteristics of various provincial systems of higher education. Nonetheless a few comparisons with non-Canadian systems may help to throw into relief some of the characteristics of the Canadian postsecondary sector which, because of their very familiarity, might otherwise go unnoticed.

1.5.1.1 Emphasis on Minimum Standards

The first thing to observe is that differences in quality among universities do not arise as a matter of deliberate government policy. In some foreign jurisdictions they do. For example, Canadian post-secondary education contrasts sharply with the public higher education system of the State of California. California has a three-tiered system including the multi-campus University of California, a network of four-year state colleges with an aggregate enrolment in 1969 of some 225,000, and more than 90 junior or community colleges with about triple the capacity of the state colleges. The system is highly differentiated both by function and quality. As noted by Neil J. Smelser (1972: 24):

> The education code of the state declares that the university is "the primary state-supported academic agency

> for research," that it has "exclusive jurisdiction in public higher education, in the professions of law, and over graduate instruction in the professions of medicine, dentistry, veterinary medicine and architecture," and that it "has the sole authority in public higher education to award the doctoral degree in all fields of learning."

The state colleges, some of which were originally teachers' colleges, have limited powers to grant masters' degrees. Only since 1960 have they had the power to grant doctoral degrees, and they can do so only jointly with the university. Faculty research is authorized "to the extent that it is consistent with the primary function of the state colleges [i.e., instruction, for the most part at the undergraduate level], and the facilities provided for that function." Finally, the California Junior Colleges:

> ... were expressly limited to two-year status and to awarding the associate in arts and associate in science degrees. The legislation further specified that instruction should be primarily in three areas: "(1) standard collegiate courses for transfer to higher institutions; (2) vocational and technical fields leading to employment; and (3) general or liberal arts courses." (Smelser, 1972: 25).

This stratification of the system in terms of function was complemented by a stratification in quality, with the secondary school graduates of highest academic standing going directly to the University of California, a middle segment going to the state colleges, and the bottom segment having access only to the junior colleges. The opportunities for transfer from one tier to the tier above it accommodated those cases where a student's academic performance improved over the time he was at college.

The educational philosophy which underlies the California Master Plan for Higher Education (legislated in 1960, although its major features had evolved long before) emphasizes equality of opportunity for the individual, recognition of high standards of academic achievement, and a stratification of educational institutions in a well articulated hierarchy. These features are evident in American higher education as a whole, although no other state has applied the underlying principles in so schematic a way as California. Everywhere in the United States, however, it is taken for granted that some institutions are superior to others and that financial resources will be lavished on the best institutions in order to equip them to become truly outstanding on a world scale. It seems to be accepted that a consequence of such a policy is the degradation of standards in inferior institutions, access to which is academically wide open though not necessarily financially painless.

Educational philosophy in Canada has been in one respect more elitist than in the United States, and in another, more egalitarian; and the structure of the post-secondary sector has reflected this philosophy. In spite of the heavy emphasis over the past two decades on widening access to post-secondary education, governments and universities alike have stressed the importance of maintaining minimum standards. There has been some insistence on the distinction between academic and "applied arts" or technical programs. Except in Alberta and British Columbia, institutions do not offer both types of program -- at least, not at the post-secondary level. Even in these two provinces, where some of the community colleges do have university transfer programs as well as manpower-training programs for sub-professional occupations, every effort has been made to achieve equality of standards in academic subjects.

One implication of Canadian educational philosophy is that in most provinces students in the secondary schools have been urged to make an early choice if they wished to pursue their academic studies at the university level. As a result, the entire educational system is moderately elitist in its norms and structures. (No doubt this has had a significant bearing on participation rates at the post-secondary level, and even on the tendency of students to complete, or to drop out of, high school.) However, for those students who do go to university, or embark on university transfer programs in a community college, Canadian educational authorities -- in government and out of it -- have been declared advocates of equal standards of achievement. They have shrunk from any suggestion that public policy ought to establish a hierarchy of institutions in terms of quality, and to accord favoured treatment to the front runners.

1.5.1.2 Large Number of Graduate Programs

A second major structural feature of Canadian higher education is that relatively few universities have restricted themselves to undergraduate teaching, or are so restricted by charter or founding legislation. In 1978/79 the Ryerson Technological Institute and the University of Winnipeg were the only degree-granting institutions of over 2000 students that had no graduate enrolment (though the latter does have some joint M.A. programs with the University of Manitoba). Doctoral work was conducted on thirty university campuses -- rather more than half the total, representing more than 85 percent of the aggregate number of full-time university-level students, approximately 360,000. (To get some impression of relative size, 360,000 is about half the capacity of the California Junior Colleges.)

These data have significance for the quality of undergraduate instruction. They also tell us something about the utilization of the resources available in Canada for graduate programs and for research. They are spread very thin.

Impact on undergraduate teaching. As we have observed, only a relatively small number of Canadian undergraduates attend institutions which do not have at least some doctoral students. In 1978/79 scarcely more than ten per cent of all undergraduates were on campuses where graduate enrolment accounted for less than five per cent of the total. Five per cent is large enough to mean that the university has some ambitions at the graduate level, and that (depending on funding arrangements) graduate programs probably cannot be abandoned without causing disruption to the university's finances, to say nothing of its prestige or the self-esteem of the faculty. As a result, the university must allocate a fair proportion of its resources to graduate programs; moreover, undergraduates must compete with graduate students for the time and attention of faculty.

These factors may have a detrimental bearing on undergraduate instruction. On the other hand, there will be benefits too: a faculty of more diverse intellectual interests, with more up-to-date knowledge of the literature; library and laboratory facilities of better quality, available to the undergraduates; and above all a more "live" atmosphere of enquiry and discovery. How extensive those benefits are, and whether they outweigh those effects on undergraduate instruction which are detrimental, will depend on the success of the graduate program and particularly its ability to attract good students. A mediocre graduate program is demoralizing for faculty and is a real burden for the university, weakening its capacity as an undergraduate teaching institution.

Dispersal of resources. Another matter for concern is that graduate education in Canadian universities is highly dispersed. The phenomenon of the graduate university, where a majority of the students are enrolled in master's or doctoral programs (at the University of Chicago the ratio of graduate to undergraduate students is about 2:1), is unknown in Canada. In major Canadian centres of learning graduate students may account for ten or twelve percent of total full time enrolment; only one university (McGill) reaches as high as 20 percent.

There is nothing inherently wrong with a graduate/undergraduate ratio of, say, 1:10. It implies, however, a very large university if the graduate programs are to be of viable size, or else the development of graduate work on a highly selective basis within the university. There is a strong current of opinion which suggests that quality of undergraduate instruction falls off with university size, though people disagree whether the detrimental effects of scale manifest themselves when the university reaches 5,000 or 20,000. There are some who do not accept the thesis at all. Nonetheless, it is an opinion which deserves serious consideration, and does raise some questions about the considerable dispersion of graduate programs in Canada, such that 1:10 is a "high" ratio of graduate to undergraduate students. In a few cases those questions are about the wisdom of having "mega-universities"; but in the larger number of cases they are about the minimum size of good graduate programs, and the use made of available resources. If financial and human resouces are modest, as they are in Canada, dispersion of those resources is especially wasteful.

1.5.1.3 Research Inseparable from Teaching

A third feature of Canadian higher education is the combination of teaching and research functions in the university. This works well, and it appears to improve the quality of both. It is also in keeping with the Anglo-American tradition, though it contrasts with practice in some continental European countries, notably France.

The conduct of both teaching and research by university faculty deserves our attention as we survey some of the structural features of Canadian post-secondary education. It does so because events of the next two decades may tend to separate them.

In the last few years there have been several suggestions for the separate funding of teaching and research. Depending on the steps taken towards doing this, the effect might be to reinforce the already widespread conception of the university as just a packager and disseminator of informaton and technique. Research may increasingly be regarded as a discrete activity carried on only by a minority of university faculty, or by members of research institutes who may hold joint appointments at a university. This would entirely change the character of Canadian universities, with disastrous consequences for instruction at all levels, graduate and undergraduate.

1.5.1.4 Canadian Universities as Provincial Institutions

A final observation about the structure of Canadian higher education is that there is no longer any differentiation of universities by source of funds. Formerly church-supported or other private institutions, with the exception of some theological colleges or universities, have acquired quasi-public status. Traditions of private benefaction have never developed in Canada to the same extent as they have in the United States; indeed, now that the state has assumed so many responsibilities in education, health care, and social services, private support is considerably weaker than pre~~vious~~ly it was. It is now probably impossible for any Canadian universities to free themselves from financial dependency on the public purse, if indeed this ever was an option. Thus, the wealthy private university, which is so important a feature of higher education in the United States, does not exist in Canada. The private-public distinction does not apply. Nor does a distinction which exists in Australia, where most of the universities are supported by the state governments (though increasingly with assistance from the Commonwealth) while the Australian National University occupies a high-profile and privileged position as the main centre for graduate work and research.

1.5.1.5 Summary

To recapitulate our major observations about the structure of Canadian post-secondary education:

- --the emphasis of public policy has been on the maintenance of minimum standards rather than on differentiating institutions on the basis of quality as well as function;
- --graduate work is highly dispersed within the network of universities;
- --universities have traditionally combined the teaching and research functions, although there may be some tendency to move towards their separation, and perhaps to the creation of separate research institutes; and
- --universities are not differentiated from each other according to the sources of their financial support (private or public; provincial or federal).

Each of these features has a significant bearing on the quality of university teaching and research in Canada, and each may be sensitive to the adoption of new policies for the public support of higher education.

1.5.2 A PROFILE OF CANADIAN POST-SECONDARY EDUCATION

Notwithstanding the existence of some features which characterize Canadian post-secondary education as a whole, there is considerable variety among provincial systems. We ought not to be more impressed, as Canadians so often are, with differences among provinces than with similarities which are observable across the land. Each province, however, does have its own pattern of post-secondary institutions. It would be irresponsible to comment on the funding of Canadian universities without taking such diversity into account.

This section accordingly presents a profile of Canadian post-secondary education, which is summarized in Table I-4. In the table, the provinces are grouped into three categories according to the relationship that public policy has established between universities and non-university institutions at the post-secondary level. The first category, which includes only Quebec, is one in which there are colleges at the pre-university level. Those admitted to uni-

TABLE I-4

PROFILE OF POST-SECONDARY EDUCATION IN CANADA 1978/79

Panel A: Non-degree-granting institutions are pre-university colleges: Graduation required for admission to university.

Includes: Quebec

DEGREE GRANTING INSTITUTIONS

Full time Graduate Enrolment as Percentage of Total Full-time Enrolment

less than 1% (1)			1.0% to 7.9% (2)			8.0% or more (3)		
Bishop's			Que. à Montréal			Montréal		
FT-	817	.05	FT-	7,295	5.4	FT-	17,719	14.2
PT-	514		PT-	8,868		PT-	25,011	
			Que. à Trois Rivières			Laval		
			FT-	3,493	3.8	FT-	16,840	10.7
			PT-	4,051		PT-	6,516	
			Que. à Chicoutimi			McGill		
			FT-	1,793	3.3	FT-	15,141	21.0
			PT-	4,035		PT-	4,335	
			Que. à Rimouski			Concordia		
			FT-	921	5.3	FT-	10,205	9.3
			PT-	2,747		PT-	12,673	
			C.E.U.O.Q.* (Rouyn)			Sherbrooke		
			FT-	231	2.2	FT-	6,436	19.6
			PT-	1,420		PT-	3,339	
						C.E.U.O.Q.* (Hull)		
						FT-	466	10.8
						PT-	1,874	

* Centre d'études universitaires dans l'ouest Québécois.

TABLE I-4 (continued)

PROFILE OF POST-SECONDARY EDUCATION IN CANADA 1978/79

Panel B: Non-degree-granting institutions include dual-function colleges which train students for immediate employment but are also partly feeder institutions for the universities.

Includes: Alberta and British Columbia

DEGREE GRANTING INSTITUTIONS

Full-time Graduate Enrolment as Percentage of Total Full-time Enrolment

less than 1% (1)	1.0% to 7.9% (2)	8.0% or more (3)
	Victoria FT- 5,267 6.1 PT- 2,462	U. of British Columbia FT- 19,001 11.5 PT- 3,759
		Simon Fraser FT- 5,448 11.2 PT- 3,634
Lethbridge FT- 1,441 0 PT- 421		U. of Alberta FT- 18,467 11.0 PT- 3,661
		Calgary FT- 10,456 11.0 PT- 2,957

TABLE I-4 (continued)

DEGREE GRANTING INSTITUTIONS

Full-time Graduate Enrolment as Percentage of Total Full-time Enrolment

less than 1% (1)			1.0% to 7.9% (2)			8.0% or more (3)		
Ryerson Polytechnical Institute			Guelph			Toronto		
FT-	9,171	0	FT-	8,934	6.9	FT-	31,078	16.8
PT-	8,869		PT-	913		PT-	13,907	
Nipissing			Wilfrid Laurier			Western Ontario		
FT-	290	0	FT-	3,278	7.8	FT-	16,109	10.2
PT-	437		PT-	2,701		PT-	4,735	
Algoma			Laurentian			Waterloo		
FT-	163	0	FT-	2,319	3.6	FT-	14,273	8.0
PT-	643		PT-	2,338		PT-	4,521	
Hearst			Lakehead			York		
FT-	37	0	FT-	2,217	4.4	FT-	11,717	10.4
PT-	183		PT-	1,385		PT-	11,121	
			Brock			Ottawa		
			FT-	2,188	2.4	FT-	10,654	11.2
			PT-	2,615		PT-	6,995	
			Trent			Queen's		
			FT-	2,175	1.7	FT-	10,193	10.3
			PT-	1,087		PT-	2,903	
						McMaster		
						FT-	9,675	11.8
						PT-	3,621	
						Carleton		
						FT-	8,289	11.7
						PT-	6,084	
						Windsor		
						FT-	6,077	8.6
						PT-	4,076	

TABLE I-4 (continued)

PROFILE OF POST-SECONDARY EDUCATION IN CANADA 1978/79

Panel C: Non-degree-granting institutions are vocational and/or technical colleges which train students for immediate employment. Few or no students transfer to the universities.

Includes: Atlantic Provinces, Ontario, Manitoba, and Saskatchewan

DEGREE GRANTING INSTITUTIONS

Full-time Graduate Enrolment as Percentage of Total Full-time Enrolment

less than 1% (1)	1.0% to 7.9% (2)	8.0% or more (3)
	U. of Saskatchewan FT- 10,135 6.0 PT- 4,054 Regina FT- 3,340 2.9 PT- 1,872	
Winnipeg FT- 2,602 0 PT- 3,116 Brandon FT- 1,162 0 PT- 966		U. of Manitoba FT- 12,669 12.4 PT- 6,778
Mount Allison FT- 1,333 0 PT- 50 St. Thomas FT- 724 0 PT- 141	U. of New Brunswick FT- 5,886 6.0 PT- 2,093 Moncton FT- 2,954 3.5 PT- 1,821	
Cape Breton FT- 642 0 PT- 888 Université Ste. Anne FT- 207 0 PT- 220	Acadia FT- 2,701 4.8 PT- 788 St. Mary's FT- 2,207 2.5 PT- 1,531 St. Francis Xavier FT- 2,129 1.6 PT- 509 Mt. St. Vincent FT- 1,466 1.0 PT- 822	Dalhousie FT- 7,033 13.3 PT- 1,585
U. of P.E.I. FT- 1,390 0 PT- 817		
	Memorial FT- 6,161 7.2 PT- 3,207	

TABLE I-4 (concluded)

Notes: (1) The division of this table into three panels draws attention to three distinct types of provincial post-secondary systems: those in which graduation from colleges is a requirement for admission to university (Panel A: Quebec), those in which some students proceed directly from high school to university while others take the first part of a degree program at a college but must subsequently transfer to university to complete the degree requirements (Panel B: Alberta and British Columbia), and those in which the functional distinction between colleges and universities is sharply drawn, and few or no students transfer from colleges to universities (Panel C: Saskatchewan, Manitoba, the Atlantic Provinces, and Ontario).

(2) Within each panel, degree-granting institutions are grouped by province, and within each province, in three columns according to the percentage of full time graduate enrolment in the total full time student body. In each column, the universities are ranked by size of full time (FT) enrolment, although part time enrolments are also given (PT). The percentage of full time students enrolled in graduate programs is indicated for each institution.

(3) For an explanation of the treatment given to federations of universities, and for rules-of-thumb regarding inclusion in or exclusion from the table, see text.

Source: Calculated from enrolment data supplied by Statistics Canada.

versity must normally have completed two years of college (CEGEP) in the academic stream. The second category includes British Columbia and Alberta; in these two provinces there are community colleges, some of which have the dual function of preparing some students for the upper years of university and of training others for immediate employment. A third category, which includes the rest of the provinces, is one in which the colleges are entirely distinct from the university system. Few or no students transfer from them into university, and usually then only with make-up courses.

The main feature of the table is that it lists individual degree-granting institutions in each province, grouping them into three lots according to the percentage of graduate students in the full-time student body. In each case, the number of full-time and part-time students is given. Enrolment data for the profile were provided by Statistics Canada.

The profile includes a total of 55 institutions. This compares with the 71 which reported financial data to the Canadian Association of University Business Officers (CAUBO) in 1978/79. The discrepancy is accounted for by the facts that:

--One institution included in the profile (Algoma College, an affiliate of Laurentian University) is not a member of CAUBO and did not report; one institution (the University of New Brunswick) reported late to CAUBO but is included in the profile (the financial data from UNB are also included in subsequent tables, having been obtained by me from CAUBO); and the two campuses of the Centre d'études dans l'ouest québécois, which reports to the CAUBO as a single institution, are included separately in the profile. This brings the total, before deletions and amalgamations, to 74.

--Six institutions which did not offer an on-campus undergraduate arts or arts and science program were excluded from the profile, as being not properly comparable to the others. On these grounds were deleted: Athabasca University, the Ecole nationale d'administration publique, l'Université du Québec à Ste. Foy, the Nova Scotia College of Art and Design, the Nova Scotia Technical College, and St. Peter's Seminary. These six deletions reduce the total to 68.

--Institutions affiliated to or federated with one another, and located close enough to each other to permit sharing of facilities and the offering of joint programs, are amalgamated for purposes of the profile. The same practice has been followed for institutions which are in effect faculties or professional schools of a major university. Under these principles the colleges of the University of Toronto are included in the university total, as is the Ontario Institute for Studies in Education; the Ecole Polytechnique and the Ecole des Hautes Etudes Commerciales are included with the Université de Montréal, and so forth. On the other hand, the component parts of the administratively centralized Université du Québec are listed separately, since to do otherwise would give an unjustified impression of the scale of operations of this multi-campus institution. All in all, amalgamations reduce the total by another 13, yielding a net figure of 55 institutions in the profile.

From the table, one gets a birds-eye view of the structure of post-secondary education in each province. Some of the most important features of the system and of individual institutions, of course, cannot be displayed in tabular form. Excellence in teaching and research is one of these features. The table also fails to tell us about the range of programs offered in each institution, although we may presume that the very small institutions offer only a basic undergraduate arts program with limited course choices. In some instances, however, the table may be quite misleading, as I think it is with, for example, the University of Saskatchewan. Although this university has relatively few graduate students and is not very large, it provides training in several of the traditional high-prestige professions, conducts important research work, and offers a wide range of academic programs.

Notwithstanding the individual cases where one might draw unjustified inferences from the table, it does convey an overall impression of the number and to some extent the character of the universities which depend upon financial support from Canadian governments. In the context of demographic projections which suggest an overall drop in the size of the traditional clientele for post-secondary education, a drop which will be particularly marked in some provinces, it becomes evident from the table that some institutions will be especially vulnerable to the consequences of a decline in the university-age population.

These may include a fall-off in high quality recruitment to graduate programs and consequent changes in the internal operations of even the major universities; the adverse effects of demographic change may be most severely felt by, but will not be limited to, those institutions which are located in regions where the emigration of young people is most pronounced.

More generally, Table I-4 demonstrates that the various provinces have acquired, through a combination of design and happenstance, distinctive educational systems. The relationship between schools, colleges, and universities varies substantially by province, reflecting differences between them in culture, in population size and distribution, and in the financial resources of provincial governments. Adventitious factors, such as electoral motivations and the judgment of key personalities at certain critical junctures in the development of post-secondary education in the province, have also helped to create the diversity of structures observable from one province to another. In discussing alternatives for university finance, it is essential to be aware of this. The diversity one observes is a legacy of past decisions and also to some extent expresses preferences which may hold long into the future.

Although the table indicates some of the structural features of Canadian higher education, it conveys none of its dynamics. The network of institutions is, however, changing all the time, partly because of changing external circumstances, and partly because of administrative responses to them. Some of the relevant decisions are taken within each university; others, by the provincial governments or their appendages (universities' commissions or various buffer institutions of an advisory character). Governmental decisions may be all the more important in the future, and so it is necessary to say something about each province and the policy intentions -- so far as they can be discerned -- of the various provincial governments.

1.5.2.1 British Columbia

British Columbia is a growth province. Its three universities are all planning for a modest increase in enrolments and for continued development of their academic programming. (Note: This section was written in 1978.) It is by no means clear, however, that such plans have the support of the provincial government, which has declared that any new programs may be developed only by cutting back elsewhere. "Outreach" or extension programs, however, are apparently exempt from this stop-growth position.

The provincial government has been and remains concerned to expand opportunities for higher education in areas outside the Lower Mainland region (around Vancouver) and the southern tip of Vancouver Island, around Victoria. Indeed, it appears that the prospects for the universities over the next few years will be closely bound up in the development of "Interior programming". At issue here is the universities' evolving relationship with the community colleges and any other institutions which may be created to respond to the need for educational outreach.

The importance of dispersing the location of facilities for higher education has been the major factor in the shaping of the post-secondary sector during the past decade and a half. Decentralization in the delivery of educational services was the theme of a report in 1962 by John B. MacDonald, then President of the University of British Columbia (UBC). The report, entitled Higher Education in British Columbia and a Plan for the Future, made a number of recommendations which were almost immediately acted upon. They included:

--elevation of Victoria College, then an affiliate of UBC, to the status of a full-fledged university (implemented 1963);

--the creation of a new university in the Vancouver area (Simon Faser University, located in a massive Third Reich structure atop a mountain in the Vancouver suburb of Burnaby; its first students enrolled in 1965); and

--the construction of a network of community colleges, of which there are now 14, offering a variety of programs including in most cases the equivalent of the first two years at university.

The province is fortunate that the period of rapid expansion which ensued upon the publication of the Macdonald report did not bequeath it with any universities whose future viability is in doubt, as might have been the case if a number of regional universities had been established. (The only non-coastal university in the province, Notre Dame University at Nelson, was closed down in 1976 when the government withdrew its financial support.) On the other hand, the success of the colleges in supplying the needs of the residents of the Interior for university-level instruction, seems to have been very limited.

The aggregate full time enrolment in university transfer programs in the community colleges was about 7,000 in 1976/77; there was also a slightly larger number of part-time students in these programs. (For comparison: in that year Simon Fraser and Victoria each had about 5,400 full-time students and fewer than 3,000 part-time students.) Even if the colleges do enrol largish numbers of students in the academic program, other evidence modifies the impression obtained merely by looking at total enrolment figures.

Particularly striking is the fact that fewer than ten per cent of the university transfer students complete the two years of the transfer program and then continue their studies at university. This low figure is partly explained by the fact that only about 25 per cent of the full-time students enrolled in a university transfer program continue into the second year. What happens to the other 75 per cent? Some presumably transfer to university having completed only their "senior matriculation" year (formerly offered in many of the secondary schools); others drop out; and some transfer to vocational or career programs in the colleges. I do not know, however, which of these patterns predominates.

One factor which appears to hinder transfers to university is that the universities frequently wish to scrutinize not only the students but also the qualifications of college staff before allowing transfer credits. This practice reflects the doubts of many university faculty about the quality of instruction in the colleges. Naturally, it is highly irritating to college faculty. Attempts have been made to solve this problem by setting up "articulation committees" in individual academic subjects, but they do not seem to have been very effective. Acceptance of course credits for transfer students depends upon decisions in academic departments, and a practice once established may be disrupted by changes in course requirements within the universities. In the result, transfers from colleges to the universities remain subject to uncertainties, and the creation of a genuinely integrated system of post-secondary education is far from realization.

This situation has been recognized by the government in at least two ways: the development of Interior programming independently of the colleges and perhaps independently of the universities, and the establishment of machinery to do under complusion what has so far been impossible to attain by persuasion.

The Colleges and Provincial Institutes Act (1978) provides, amongst other things, for the creation of an "Academic Council" to advise the Minister of Education on matters relating to academic programs in the colleges. It provides for articulation committees to recommend on the equivalency of courses given at one institution or university as compared to courses given at another institution or university. In cases of dispute, the Academic Council is to have power to make a ruling on the matter, apparently in this respect being able to override university decisions on admissions. This power, if exercised, might well conflict with provisions of the Universities Act, and it certainly flies in the face of widely accepted and indeed minimal notions of the academic responsibilities of the university.

More important, however, for the overall structure of the post-secondary sector in British Columbia is the government's continuing concern over Interior programming. In 1976 it commissioned William C. Winegard, a member of the Ontario Council on University Affairs and subsequently its chairman, to review the matter and to make recommendations. The Report on the Commission on University Programs in Non-Metropolitan Areas (cited here as Winegard, 1976) proposed the establishment by 1990 of a multi-campus university, to begin life as a separately funded division of Simon Fraser University and to develop, under the aegis of SFU, degree-completion programs in arts, science, and education. The new university would have an administrative centre at Vernon, and "four small University Centres in Prince George, Kamloops, Kelowna and Nelson" (Winegard, 1976: 12-13).

The government did not act upon the recommendations of the Winegard report, but instead contracted the following year (1977) with the Universities Council of British Columbia -- its financial agent for the universities, and the official source of advice about the university affairs -- to establish an Interior University Programmes Board. The Board was assigned responsibility for planning university programming outside the Lower Mainland and the Victoria areas. It proceeded to ask each of the universities for its proposals regarding outreach programs. The most ambitious of the plans put forward, a plan broadly consistent with the recommendations of the Winegard report, was presented by

Simon Fraser University: SFU would sponsor the development of degree-completion programs in various population centres in the Interior.

The government, apparently ignoring these developments and leaving the universities, the Universities Council, and the Interior University Programmes Board in confusion, proceeded with an initiative of its own. It took steps to create some Open University (television-based) arrangement which would bypass rather than build upon existing extension work in the universities. The eventual outcome of these bizarre events was the creation of an Open Learning Institute.

Whatever happens, the impact on the existing universities will be substantial. The University of Victoria draws a substantial proportion of its student body from the Interior -- a heavier proportion than is the case for either UBC or SFU — and might be adversely affected by any really succesful implantation of university completion programs outside the metropolitan areas. Simon Fraser may be directly involved in the organization of new programs or university centres. The University of British Columbia is less likely to be directly implicated, though it too cannot but be affected by changing enrolment levels in the province as a whole and the size of university establishments created to handle them.

Some demographic projections (Chart I-9) suggest that British Columbia may experience an expansion of its population aged 18 to 24 over the next two decades, while other projections anticipate a secular decline. It may well be that any increase in the total number of university students in the province will have to come from increased participation rates. This, of course, is what the government is aiming for. At present, the proportion of young people who enroll in academic post-secondary education is said to be two or three times higher in the Vancouver and Victoria areas than elsewhere in the province (Winegard, 1976: 2). An equalization of educational opportunity across the province could thus, even in the absence of population growth, support another university or additional academic programming without diminishing the scale of operations of the three existing universities. It is impossible to know, however, whether the students will actually materialize in the numbers anticipated.

The existing B.C. universities were characterized by Dr.

Winegard in the following terms (Winegard, 1976: 10):

> The University of British Columbia is the major professional, graduate and research institution of the Province; in these areas it is a national and international resource. It must carry a heavy responsibilty for extension work in all parts of the Province in the professional disciplines. As well, it must assume a major responsibility for continuing education and evening credit programs in the Vancouver area. The Commission feels very strongly that the role of the University of British Columbia as outlined above is the correct one and that the people of British Columbia and indeed of Canada would be ill-served by any proposal that diluted this role. It is difficult to believe that the University of Brtish Columbia can expand its existing degree programming for the nonmetropolitan areas without detracting from its major responsibilities as outlined above.
>
> The University of Victoria wishes to be, and should be, a highly residential undergraduate Arts and Science university with a few professional programs and limited graduate work. It has the opportunity to stay relatively small and promote quality in its restricted programs. It has been carrying much of the load for continuing education on Vancouver Island and on some parts of the Mainland coast and could continue to do so without being detracted from its main role. The Province needs a university of the type envisaged for the University of Victoria.
>
> Simon Fraser University originated as an Arts and Science institution with an emphasis on tutorial teaching and in recent years it has developed interdisciplinary programs at both the undergraduate and graduate level. The University has little interest in further development of professional schools and has or should have ambitions for a somewhat restricted role in graduate work especially at the doctoral level.

This description provoked a critical if not bitter reaction at Simon Fraser and the University of Victoria. These universities do not wish to see their future development closed off. Although they clearly have no ambition to challenge the overall position of UBC, which in all respects is one of Canada's leading universities, they do regard themselves as having areas of specialization in which they rival or surpass UBC. They naturally dislike any suggestion that they be restricted to a role which is basically supplementive to that of the longer established provincial university.

If there is an umpire for this sort of rivalry, it is the Universities Council of British Columbia. The Council was created in 1974 with the object of planning or coordinating the development of the universities, to advise the government on their funding, and to act as agent of the crown in the allocation of the provincial subsidy among them. The composition of the Council, its powers and duties, and the manner in which it fulfills the responsibilities entrusted to it, are discussed in Section 2.7.2.1, below.

1.5.2.2 Alberta

Alberta has four universities, three of which have students on campus and are listed in Table I-4. A fourth university, Athabasca, consists mainly of an administrative centre in Edmonton (but to be moved, according to a recent announcement, to the town of Athabasca); it has only part-time students, many of whom are located in areas remote from any major urban centre.

The post-secondary sector includes, in addition to the universities, a large grouping of other institutions. Among them are six public colleges, four of which have university transfer programs as well as programs of a vocational and technical character. The provincial government quite clearly regards the universities as part of an integrated system of higher education which includes the colleges and other institutions. Although the administration of each of the universities and colleges is the responsibility of a board of governors which is not subject to government direction, ultimate control over the structure and management of the system is vested in the Department of Advanced Education and Manpower.

The University of Alberta, located in Edmonton, is the oldest, largest, and in most fields still the leading university in the province. Until 1966 it was the only university, though it had a campus in Calgary and it supervised academic programs in a number of affiliated colleges. Indeed, Duncan D. Campbell (ICED, 1978: 144) writes that the colleges:

> ...[were dominated by] the University of Alberta... through its Committee on Junior Colleges, which supervised affiliation regulations and the conduct of the transfer program. The primary concern of that committee was to protect the university's own interests through rigorous screening of college instructors and monitoring of their academic standards. The consequence of this arrangement, which became increasingly less tolerable to colleges as these new institutions emerged, was the concentration on academic work, essentially duplicative of university studies.

The University of Alberta was thus not merely the premier educational institution in the province; it occupied a controlling position at the apex of a provincial system of post-secondary education. This situation was changed drastically by legislation in 1966. The Universities Act of that year awarded Calgary the status of an independent university and provided for the establishment of additional universities by Cabinet order. The Act also prescribed a set of structures for the governance of each university, and established a Universities Co-ordinating Council with vaguely defined -- and as events proved, largely ineffectual -- powers to advise the universities' "general faculty councils" or academic governing bodies.

A noteworthy feature of the Act was its creation of a Universities Commission, an executive agency of considerable importance. It was to act as an intermediary between the Government and the universities and among universities; it had the duty of advising the government on the financial requirements of the universities and of distributing the provincial subsidy to them "in such manner as [it] sees fit". The Commission was given powers appropriate to the performance of these functions, including the power to "regulate or prohibit" academic programming resulting in "undesirable or unnecessary duplication" (The Act, Section 68).

A companion Act of the Alberta legislature, also passed in 1966, freed the public colleges from the tutelage of the University of Alberta. Its supervisory role was assumed by a Colleges Commission which in some respects was similar to the Universities Commission but exercised wider and more direct control over the institutions for which it was responsible.

With this machinery in place, the province formulated ambitious plans for the development of a university system, and it proceeded with the initial stages of implementation.

In sheer scale, Alberta's program for expanding university capacity was probably the most unrealistic in the whole country. An enrolment ceiling of 25,000 full-time students was placed on the University of Alberta -- a figure which it was expected to reach by 1973 -- and growth was to be diverted to other institutions. Of these, the University of Calgary was expected to be the twin of the older provincial university, a "multiversity" with a wide range of graduate and professional programs and an enrolment of comparable size (Alberta, Minister of Education, 1970: 7). A third university was established at Lethbridge with a target enrolment figure of 3,500 to 5,000 full-time students. A fourth university, Athabasca, was planned for the Edmonton area; it was expected to grow to 5,000 or 8,000 students by 1990 (Worth, 1972: 86).

These grandiose development plans contrast with actual experience. Full-time fall enrolments dropped marginally in 1971 and again, a little more sharply, in 1972. In these two years registrations fell by 5% in the province as a whole; at Lethbridge they declined 24%. Growth began again in 1973; by 1976 full-time fall enrolment had reached about 20,000 at the University of Alberta, 11,000 at the University of Calgary and 1,500 at the University of Lethbridge.

These figures are not reported here merely to demonstrate the margin of error to which enrolment forecasts are prone. Rather, they are presented because the target figures reveal a basic assumption upon which development plans were based. The contrast with actual enrolment data gives us a glimpse of the problems which university administrators and government planners have had to deal with, and will continue to face in the future. Of these, we shall look at the following:

-- defining a specialized role for each university;

-- problems of scale at Calgary and Lethbridge; and

-- university transfer programs in the public colleges.

1.5.2.2.1 University specialization

Although the commitment to make Calgary a "multiversity" seems to have been made very early in its history -- the

1967 debate over the location of a provincial School of Architecture was a cause celèbre, and the decision to situate it at Calgary was bitterly criticized at the U of A; some of the staff at the older institution seem to have had difficulty accepting Calgary as an equal. The uncertainties of role definition for these two universities were underscored by the 1972 report of the Commission on Educational Planning. (Perhaps significantly, the Commissioner, W.H. Worth, had been a Vice President at the U of A.) The "Worth Report" made quite a sharp distinction between the roles it prescribed for the two institutions (Worth, 1972: 85):

> Compared to the University of Alberta, which will have an undergraduate university [Athabasca] in close proximity, the University of Calgary can be expected to give more attention to junior undergraduate programs ....Duplication of programs offered at the University of Alberta, especially those of a specialized and costly nature, ought to arise only when it can be demonstrated that the province and the nation will require the graduates and that the programs at the University of Alberta are incapable of meeting the need. On the basis of this criterion, there is no apparent reason to establish programs in agriculture, dentistry, law or pharmacy at this institution.

Worth's proposal that the University of Alberta should concentrate on senior undergraduate and graduate studies, and on professional programs, suggests vestiges of its role as a flagship institution for the province, a conception which some may still retain but which appears to run counter to what government policy has been for at least a decade.

The government policy maker is the Department of Advanced Education and Manpower, which took over the functions of the Universities Commission at its demise in 1973. Even while the Commission existed, the government had a direct hand in development planning; indeed, the Capital Development Committee of those years was struck jointly by the Commission and the government, and included two deputy ministers (Finance, and Education). One suspects that, especially because of the rivalry between Edmonton and Calgary, decisions on university development were quite political. Now, with the Commission gone, they are almost transparently so.

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1.5.2.2.2 Problems of scale

Alberta's two major universities are in a position which well might be the envy of most of their sister institutions across the country. Both are assuredly viable. The smaller of the two, Calgary, has about 11,000 full-time students and is located in a city which is growing rapidly. Its 1977 Development Plan anticipates a full-time enrolment of 15,300 by 1985.

It may then seem unwarranted to raise the question whether the University of Calgary is experiencing problems of scale or may do so in the foreseeable future. I have no direct evidence that it is, or that it will. The issue nonetheless is important to raise -- in the form of a question -- for two reasons.

One is that the University of Calgary has a range of academic programs which is comparable to the University of Alberta's, though it is only about half the size of its older relation. It also has a comparable proportion of graduate students (about 9%, as against the U of A's 11%). It must, as a consequence, spread its resources a little more thinly than the U of A, which is after all about on a par with UBC in terms of scale, these two being respectively the second- and third-largest universities in Canada. This puts the University of Calgary, given the diversity of its academic programming, into a very big league. The wisdom of having opted for such diversity seems, on the face of it, a little questionable when the pursuit of excellence is the criterion to be applied. (On this matter Bernard Sheehan writes, in a letter to the author: "...I would have to see how you treated the other universities in the country before I could comment on The University of Calgary in the appropriate context.... I would have to look at comparative information from institutions such as Memorial, Dalhousie, the University of New Brunswick, McMaster, and the University of Saskatchewan. My guess is that in terms of many of our professional schools, Medicine, Law, Engineering, Management, Nursing, Social Welfare, all of which have quotas, I think it would be hard to make a (relative) case for the economy of scale argument." I agree with Sheehan in this. I suspect that, if Calgary has problems of scale, several other universities in other provinces have the same problem in much more serious degree.)

A second reason for being worried about the problem of scale at the University of Calgary is that the rivalry between Edmonton and Calgary will continue to put a political complexion on the question of university development. The University of Calgary will be under steady local pressure to expand its programming and this pressure may, depending on the political base of the governing party in Edmonton, be reinforced by decisions of the provincial government. Of course, such incitement to expansion may be far from unwelcome within the University of Calgary; for the university administration it may be a suit of trumps; but the reinforcement of their ambitions by local boosterism could make, for some academic programs, the problem of scale a significant one.

In Alberta the real problems of scale, however, are those associated with the University of Lethbridge. The range of courses this university offers is very limited, so perhaps an enrolment of less than 2,000 is not a major problem. Opinions vary as to what is the minimum viable size of a university, and I do not intend to address that question here. What it would be irresponsible to let pass unremarked, though, is that any university — no matter what its size -- will get into trouble when the area from which it draws its students is undergoing population loss.

The University of Lethbridge is, like the University of Calgary, a regional university; and the future of all regional universities is very much dependent upon interregional movements of population. Uncertainties about prospective population movements do place the University of Lethbridge, in company with a good many other Canadian universities (some of them of medium or large size), in a frankly precarious position. At a minimum, special financial arrangements may be necessary to assure its viability if the provinical government decides that it is a priority to keep it going in its present form.

1.5.2.2.3 Universities and the public colleges

Alberta and British Columbia are distinctive in Canada, in that one of the routes to a university degree is through junior colleges and subsequent transfer to university for the senior years of undergraduate study. This requires some coordination of academic programming between the universities and the colleges in order to facilitate transfers. It has also resulted in the establishment of a provincial Council on Admissions and Transfer and the development of a provincial policy on admissions which is published in an annual Provincial Transfer Guide. The policy reads:

> Admission to a university program will be granted to any applicant who has fulfilled the admission requirements as established by the university for the program concerned, or to any applicant who upon successful completion of at least a full year's study at a Public College or Provincially Administered institution is recommended in writing by the sending institution as having satisfied the appropriate matriculation requirements or their equivalent. Where selection procedures are involved in the admission to a program, each applicant shall be treated on the same basis as any other person seeking admission to the program.
>
> . . . . . .
>
> The Minister [of Advanced Education and Manpower] may approve university transfer programs in Public Colleges and Provincially Administered Institutions for the first, or the first and second years of university studies. Such approval will state the programs, disciplines, subject fields and levels at which courses may be offered and will be determined by such means or mechanisms as the Minister may decide following consultation with the various institutions and agencies involved.
>
> Full credit will be granted for these programs provided that courses taken meet the requirements of the particular program which the student wishes to enter.

There are two main implications of this policy which concern us here. One is that it may affect substantially the character of the university sector. Here one is reminded of the Worth Commission's recommendation that the University of Alberta concentrate on senior undergraduate and graduate studies, while the University of Calgary should place a relatively greater emphasis on junior undergraduate studies. Depending upon funding policies, any such distinction could affect noticeably the two major universities' capacity for excellence. Moreover, the transfers policy raises all kinds of questions regarding the position of the University of Lethbridge, which is in direct competition with the public colleges. An expansion or contraction of university transfer programs in the public colleges could mean death or life to it.

A second implication of the transfers policy concerns the funding of the universities. As long as university transfer programs are an important part of the curriculum at some of the colleges, the financial support of the universities cannot be decided upon without thinking also of the position of the colleges. As we shall see (Section 2.7.2.2, below) an effort is being made to fund junior undergraduate studies on a standard pattern whether they are carried out in a college or in a university.

1.5.2.3 Saskatchewan

The latter 'sixties were the apogee of the phase of expansion in Canadian universities. In Saskatchewan, no less than in other provinces, the mentality of growth prevailed. Plans for the development of university facilities, however, assumed a unique form in this province.

In 1968 the Saskatchewan legislature passed a University Act the purpose of which was to create a single multi-campus university. At this time the University of Saskatchewan, already fifty years old, was centered in Saskatoon and ran a satellite operation in Regina. The new Act modified the existing situation by according equal status to the two campuses, providing for the eventual or possible establishment of additional campuses, and setting up a central university administration with a common board of governors and senate (Spinks, 1972: 41-2). Each campus of the reconstituted University of Saskatchewan would enjoy a fair degree of autonomy, but overall planning and the coordination of academic programming, including extension work, would be the responsibility of the central apparatus.

This structure was jettisoned six years later (1974). It was the victim of inter-city rivalries and friction between the two academic units at the senior administrative level. The Saskatoon branch was long-established and relatively large, but conscious that it would have difficulty in maintaining its position relative to the larger provincial universities in Manitoba and Alberta. The Regina branch, on the other hand, was aiming for development and diversification in order to acquire a position more nearly on a par with that of its former parent. No doubt the tensions between the two campuses were heightened by the change in outlook which occurred in the early 'seventies, as expectations regarding future growth were scaled down. Originally it had been thought that there was room in Saskatchewan for two or even three campuses of approximately equal size and comparable diversity in academic programming. As the prospects for eventual growth diminished and the overall position of universities became more uncertain, any external restrictions on the operations of the two units became increasingly less tolerable to each.

In 1974 the province legislated a new structure: two independent universities and a Universities Commission with responsibility to coordinate university development, to advise the government on financial matters relating to the universities, and to distribute both operating and capital grants between the University of Saskatchewan (now shrunk back to its Saskatoon campus) and the University of Regina. In other words, the Commission was to perform the planning and some of the financial functions of the former central apparatus of the multi-campus University of Saskatchewan. However, instead of there being a Senate and Board of Governors in which the Saskatoon side could outvote the Regina side, there was now to be an arbitral institution independent of each, which would also act as an intermediary between the universities and the provincial government. (For more on the Commission and its powers and activities, see Section 2.7.2.3, below.)

Prospects for the two Saskatchewan universities are darkened by an anticipated decline in enrolments during the 1980's, possibly of the order of 20 per cent. A 1977 report of the Universities Commission (prepared in conjunction with university representatives) presumed that the decline would affect the two universities about equally. It also presumed that trends affecting full time day undergraduates would also apply to part time and evening students. As the Commission is aware, and as is argued in Section 1.3 above, such forecasts are subject to a substantial range of error. Although one should make allowance for such error, it is still worth noting that the forecast FTE enrolments in 1990 were: for the University of Saskatchewan, about 10,000; for the University of Regina, about 3,500. These estimates are now (1979) under review. The implications of changing enrolments are being studied by a working group composed of commission staff and university representatives.

The Universities Commission, as planner and arbiter, occupies an unenviable position. The University of Regina is seeking further development, for example in the establishment of schools of law and journalism, while the University of Saskatchewan is counselling against the dispersal of resources. The latter's arguments are particularly cogent in that the province is a relatively small one. It is more conscious than its neighbours of the need for interprovincial cooperation and for program specialization within a network of prairie, or western, universities.

These considerations notwithstanding, a systematic refusal of all development plans at the University of Regina would expose the Commission to charges of bias and would exacerbate the very inter-university and inter-city rivalries to which the implantation of a dual university structure may be attributed.

1.5.2.4 Manitoba

Of the four western provinces, Manitoba is the only one in which each university has an unambiguously defined role which is accepted all 'round. The University of Manitoba, with a full time student body of 13,600 or so, enrols more than three quarters of the province's full time students. Its 18 professional faculties and schools make it the major centre for advanced studies and research between Edmonton and central Ontario. It is also the only university in the province to offer graduate degree programs on its own.

Until 1967 the University of Manitoba occupied a unique position as the sole degree-granting institution in the province. Indeed, originally (from its founding in 1877 until the first world war) instruction was offered only in its affiliated, church-sponsored, colleges. Five such private denominational colleges still exist, loosely affiliated either to the University of Manitoba or to the University of Winnipeg; another -- le Collège universitaire de St. Boniface -- has acquired public status but remains affiliated to the University of Manitoba as a French-language institution; and two others have become independent universities. These are: Brandon University, and the University of Winnipeg, formerly United College.

The University of Winnipeg is located on a downtown campus and has more part time than full time students (3100 to 2600). Its location, and its orientation to part time studies and evening instruction, may serve to protect it somewhat from declining enrolments during the 1980's, as the size of the 18 to 24 population shrinks. It has joint Master's programs with the University of Manitoba in English, history, religion, and public affairs (the last of these having been established with the objective, among others, of meeting the needs of public servants for part time instruction related to their work).

Brandon University is the smallest of the Manitoba universities, having about 1,200 full time students and a slightly smaller part time enrolment. Its largest academic program -- rather ominously, in view of the glut of school teachers across the country — is education; together the programs in education, arts, and general studies account for three-quarters of its students. Brandon is an exclusively undergraduate university. It exists to serve a regional clientele, and has also shown a particular concern for devising means of serving the Indian population of the province.

An interesting feature of post-secondary education in Manitoba is that the community colleges are almost exclusively concerned with technical instruction. As a consequence, general academic instruction must be undertaken through extension programs offered by the universities. In this regard, one should note the existence of the "Inter-Universities North" program, a cooperative undertaking of the three universities, which is separately funded by the Universities Grants Commission. Its purpose is to provide university credit courses north of the 53rd parallel. It is, however, a small operation (21 courses at ten locations in 1977/78, with a total enrolment of 406 students), and the policy of financial retrenchment by the present government of Manitoba has left the program in a precarious and uncertain position.

In 1967 the province established a University Grants Commission which, in addition to its responsibilities relating to university funding (see Section 2.7.2.4, below), has absolute control over the introduction of new academic programs or any significant expansion of existing ones. This aspect of its activities is carried out through its Program Advisory Committee, which is made up mainly of university representatives. Although there have been some minor innovations in the last few years, the significance of the planning and development functions of the Commission has been reduced by its policy of insisting that the financial requirements of any new or expanded programs must be met from existing resources. Indeed, the current and prospective financial situation is so bleak as to make any program innovation an adventure and a luxury. Further comments on this subject are offered in Section 2.7.2.4, below.

1.5.2.5 Ontario

Ontario is the province which, because of the sheer number of its universities, can most easily devise policies for a "university sector" without transparently framing rules to apply specifically to one institution. Inevitably, policy choices will be more favourable to some universities than to others, except in the case of decisions about overall levels of funding; but the larger the number of universities, the easier it is to justify decisions on principled grounds. After all, general rules seem bogus in a situation where a single university is apparently favoured or discriminated against with every enunciation of a "principle". This is simply to say that, relative to other provinces, Ontario can more easily devise administrative techniques and an apparatus to implement rules for funding, and still maintain something of an arm's-length relationship between the universities and government.

Another distinguishing feature of Ontario's situation is that the expansion of the system, with the establishment of new professional schools and graduate programs, occurred on a larger scale and a little earlier than in other provinces. Consequently, the provincial government came earlier to the realization that this sort of expansion could be neither indefinitely prolonged in time nor unrestrained in scope. While other provinces were still concerned mainly with improving access to university and with the further development of specialized and advanced academic programs, Ontario was beginning to urge the universities to rationalize and coordinate their activities. As a result, Ontario has had longer experience than other provinces with the initial stages of consolidation and of retrenchment of university operations. These processes will pass through more acute stages during the 1980's.

The import of these two observations is that the recent development of the university sector in Ontario may well contain significant lessons, or warnings, for universities and governments in the rest of the country. Ontario has not been markedly successful in restraining the proliferation of new programs and it has certainly not been successful in bringing about the elimination of redundant ones. The arm's-length relationship which the government sought to guarantee, first through formula financing and subsequently through establishing the Ontario Council on University Affairs as a buffer between the state and the universities, is an uncertain one. Political pressures, becoming more insistent as enrolments drop, may make such a relationship difficult to sustain.

1.5.2.5.1 The "system"

Twenty-one post-secondary institutions, not counting theological colleges, receive general operating grants from the Ontario government on advice from the Ontario Council on University Affairs. Of these, one (the Ontario College of Art) does not come within the ambit of this study, and one (the Ontario Institute for Studies in Education) is treated here as part of the University of Toronto, to which it is affiliated. The remaining 19 institutions are listed in our Profile of Post-Secondary Education (Table I-4). Three of the 19 are affiliates of Laurentian University.

This listing does not, however, give an adequate impression of the structural complexity of post-secondary education in Ontario. Not only are there the theological colleges affiliated to or federated with the universities, but a number of universities are themselves federations, or they have affiliates or subsidiary campuses. Of such agglomerates, the most noteworthy are:

--the University of Toronto, a federation of universities and colleges, with a downtown campus and two satellite campuses in surburban areas of Toronto: Scarborough and Erindale; and

--Laurentian University, also a federation, with (in addition to its main components at Sudbury) three affiliated colleges some distance away: Nipissing College in North Bay, Algoma College in Sault Ste. Marie, and the Collège de Hearst.

Thus, separate counting of satellite campuses and geographically dispersed affiliates would bring the total number of post-secondary institutions to: six in metropolitan Toronto (including Ryerson Polytechnical Institute, but excluding the Ontario College of Art), and 22 in the province as a whole.

Of these 22, the miniscule Collège de Hearst is a French-language institution, and three others -- the University of Ottawa, Laurentian University, and Glendon College are formally bilingual. "Practical necessity, however," the Commission on Post-Secondary Education in Ontario has noted, "has forced [these three institutions] to provide varying parts of their instruction in parallel French and English programs" (Ontario, COPSEO, 1972: 83-4). Thus, bilingual instruction further complicates the structure of Ontario post-secondary education, augmenting at least de facto the number of instructional units.

In addition to the universities, Ontario has some 27 Colleges of Applied Arts and Technology, or CAATs, some of which have more than one campus. Most of the CAATs were established in the late 1960's. Some were founded on a pre-existing base: a technical institute or adult retraining centre. The CAATs offer a mixture of two- and three-year diploma courses, apprenticeship programs, manpower retraining programs (largely financed by the federal government on a contractual basis), and general interest courses. Most programs require grade 12 ("Year Four") for admission -- one year less than university. The CAATs offer a non-academic form of post-secondary education and are entirely distinct from the university system.

* * *

Do there just happen to be several universities in Ontario, or does Ontario have a coordinated university system? Many faculty members and administrators, mindful of the status of universities as self-governing institutions, resist the notion of "system". Nonetheless, university interdependence and an important degree of external control of universities are facts of life; and if the identity of a central directing mechanism is unobvious, there exists a network of coordinating institutions which palpably do limit university autonomy. This network consists of: the Council of Ontario Universities and committees advisory to it, the Ontario Council on University Affairs, and the responsible government ministry.

The Council of Ontario Universities, or COU, consists of the president of each university and an "academic colleague" elected by the university senate. It exists as a forum for the exchange of information, and to speak for the universities vis-à-vis government. As in the case of other interest organizations, however, its position as intermediary between the state and a specific clientele imposes upon it an ambivalent status. In seeking to ward off direct government controls over the university sector, the COU itself becomes to some degree an agent of the state, hedging in the autonomy of its member institutions. It cannot issue instructions to them, but it does have an important role to play, through its appraisals and assessment procedures for graduate programs, in the coordination of academic programming and in the moulding of the Ontario universities into a system. These procedures are outlined and commented on in Section 1.5.2.5.3, below.

The Ontario Council on University Affairs, or OCUA, is a body advisory to the Minister of Colleges and Universities. In its own words:

> Council sits, as a buffer body, between the institutions and the Government. Its role is manifold -- developing and advising the Government on general policy issues as well as specific matters [notably university finance], promoting liaison, and at the same time keeping some distance between Government and the universities, and maintaining a public interest overview of developments in Ontario universities. (Ontario, OCUA, 1978a: 69-70).

The OCUA, unlike the commissions in British Columbia, Saskakatchewan, Manitoba, and the Maritimes, does not possess executive authority. Its membership is also more representative of the universities -- though strictly in an informal way -- than is the case with those commissions, which are agents of the Crown. However, the OCUA is by no means a spokesman for the universities; it assesses their needs in the light of what it considers to be the public interest, and growls constantly (as does the Minister from time to time) about the need for rationalization of the system. It has warned of its readiness to impose controls if the universities individually and collectively do not rationalize, as it were, voluntarily (Ontario, OCUA, 1978a: 54). Four months after this warning, however, the Minister declared that "mandatory central controls" over graduate planning would end in 1983-4, a declaration whose implications are unclear (particularly in the light of subsequent policy statements) but which seems to suggest a redefinition of role for the OCUA and greater, if misplaced, reliance on the COU as an instrument of collective university self-government.

The responsible government ministry, currently the Ministry of Colleges and Universities, involves itself fairly directly in the administration of the CAATs; in relation to the universities its role has been more that of an overall planner (especially during the period of rapid expansion), presumably an evaluator of the advice tendered by the OCUA, and a comptroller. For example, it keeps tabs on enrolment and generally marshalls the data needed to allocate public funds to the universities.

1.5.2.5.2 Enrolment prospects: Who gets hit worst?

The OCUA, in each of its annual reports since 1975/76, has commented on changing demographic patterns and on enrolment prospects for universities. It has consistently emphasized the unpredictability of future trends in enrolment. Nonetheless, its Fourth Annual Report (1977/78) notes that, taking into account only the number of live births in Ontario, one might anticipate an enrolment curve which rises to a peak of five per cent above the estimated 1978/79 level in 1981/82, and then drops by 20 per cent over the ensuing 15 years. It observes that other factors will also have an impact: changing participation rates, interprovincial migration, and changes in part-time enrolments. Hence, it says, "...the estimate just provided could vary up or down. .." (Ontario, OCUA, 1978: 8). In another document published later the same year, it remarks that over a 20-year period "...a drop of about 25 per cent ought not to be unexpected" (Ontario, OCUA, 1978a: 2). This perhaps is unduly pessimistic, but it is certainly possible. On the other hand it would take a rise in the participation rate to 16 per cent to offset the decline in the 18 to 24 age group anticipated in Statscan population projection #4 (see Section 1.3.1, above).

It is obvious that a drop in overall enrolment, whether five per cent or 25 per cent, would have a much more disruptive impact if concentrated in a few universities than if distributed evenly across the system. The structural adjustments called for will be of much greater magnitude if the brunt of the decline is borne by, say, a third of the institutions. This may well be exactly what happens.

Some of Ontario's 16, 19, or 22 institutions (depending on how you count them) are distinctly regional in the sense that they draw the majority of their students from the immediately surrounding area. If that particular area shows (due to regional migration) a sharper-than-average drop in 18 to 24 age group, such universities will be especially vulnerable in a situation of generally declining enrolments. Those regional universities which are located in areas of anticipated out-migration, are (with the apparently most vulnerable being listed first): Laurentian, Brock, Lakehead, Carleton, Ottawa, McMaster, and Windsor. Other universities are either located in an area of anticipated in-migration, or else draw a majority of their students from outside the region. In the latter group we find: Queen's, Waterloo, Guelph, Western Ontario, and Trent (Ontario, MCU, 1978).

Another way of measuring a university's vulnerability to the expected downswing in the size of the 18 to 24 population, is to examine data on the enrolment preferences of applicants to university. The Council of Ontario universities runs a Universities Applications Centre which is essentially a clearing house. Applicants list the institutions to which they are seeking admission in order of preference. Of the applicants eventually accepted by each university, a varying proportion will have listed that institution as their first choice. These percentages ran, in 1977, from 94 down to 62 (data supplied by the Applications Centre).

This means that some universities had a freshman intake of which more than a third would, by preference, have gone elsewhere. As the demand for places drops, a higher percentage of applicants will presumably obtain acceptance from their first-choice university, leaving the universities which now rank lower on applicants' preference-scales in a particularly hard-pressed position.

If, on the basis of data on enrolment preferences, universities are ranked according to their apparent vulnerability to declining enrolments, the results correspond only moderately well with the impressions obtained by looking at the geographical origin of student populations and regional migration patterns. There are, however, several cases where the two methods of judging vulnerability do yield comparable results. This suggests that some of the Ontario universities will experience especially severe difficulties over the years ahead.

1.5.2.5.3 "Role differentiation"

In September 1978 the OCUA published a "white paper" entitled The Ontario University System: A Statement of Issues (Ontario, OCUA, 1978a). In the paper it explored a number of possible responses to the prospective decline in university enrolments. Some of the responses relate to staffing and staff salaries, while others have more to do with structure.

In respect of structural changes, there seem to be three main options: closing down universities or satellite campuses, amalgamating institutions or programs, and "institutional role differentiation". The last of these options means, essentially, cutting out unviable or substandard academic programs. We look at this option first.

The OCUA expresses the opinion that role differentiation "...would assist in the effective utilization of public funds through elimination of areas of unnecessary duplication". It proposes (Ontario, OCUA, 1978a: 57):

1. Institutions oriented primarily toward undergraduate Arts and Science, with few, if any undergraduate professional programs and no graduate programs.

2. Institutions oriented primarily toward undergraduate Arts and Science and selected undergraduate professional programs. Institutions falling into this category might have, as well, limited offerings at the master's level to meet specific regional needs and opportunities.

3. Institutions which offer a broad range of programs at the undergraduate and master's levels, including professional programs, with doctoral programs in fields restricted to the institution's particular strengths in one or two graduate sectors.

4. Institutions which offer a broad range of programs at all levels of instruction. Programs at the graduate level would likely be offered in each of the four general graduate divisions, but not necessarily in all disciplines.

A glance at the Profile of Post-Secondary Education (Table I-4) reveals only one university — if one excludes Ryerson Polytechnical, and Laurentian's three affiliates -- which falls into the first of these categories. Clearly, any move towards role differentiation would require extensive paring of program offerings in almost every university.

The machinery for accomplishing such a restructuring of the Ontario university system is already to some extent in place, at least as far as graduate studies is concerned. (Probably new machinery would be required for reducing the number of professional schools, unless universities simply volunteered their professional faculties for amputation.) The OCUA remarks that the evolution of the graduate sector of the Ontario university system "has been characterized by a degree of control not found elsewhere" (Ontario, OCUA, 1978a: 48); and what is apparently contemplated now is to throw the machinery into reverse gear.

The setting up and the operation of the machinery in its early years has been described by Bernard Trotter (1974: 34-5):

> A primary goal in the early sixties was the expansion of enrolments in graduate studies, particularly in the humanities and social sciences, to meet anticipated need for large numbers of qualified university teachers. The Ontario Graduate Fellowships Program and special grants to universities designed to encourage graduate enrolments helped to double them in four years from 1962 to 1966. By 1965, however, it was already clear to the government that such expansion could not be allowed to continue helter-skelter and unplanned if unacceptable costs were to be avoided. Accordingly, the Government established a Commission to study the development of graduate programs in Ontario universities [chairman, J.W.T. Spinks]....
>
> The Report of the Commission recommended a restructuring of the formal governing arrangements in Ontario to create a Provincial University of Ontario on the model of the state universities of California and New York. The Commission believed that this form of organization would leave the individual institutions with their own governing structures and identities intact while providing "for a maximum degree of coordination of the fourteen universities with a minimum loss of autonomy on the part of the individual institutions". The recommendation was rejected by the government and universities, perhaps because of an historical preference in eastern Canada for decentralization while attempting to achieve centralization as necessary in informal rather than formal ways. The report as a whole documented the unmistakable need for effective "cooperation and coordination between the universities in the field of graduate studies and research, with a view both to develop excellence and to economize resources". This conclusion was not challenged. Only the means of meeting such a need were at issue.

> The CPUO [Committee of Presidents of the Universities of Ontario] and its affiliated Ontario Council on Graduate Studies (OCGS) moved quickly to establish a system of appraisal to ensure that new graduate programs would be implemented only after it was shown that the proposing university had such professorial, library and other resources as to ensure a minimum level of quality. At the end of 1967, when the system of formula financing was being introduced, the Committee on University Affairs announced that, while universities were free to begin new graduate programs, nevertheless students registered in programs which had not successfully passed through the CPUO appraisal procedure would not be counted for purposes of calculating the university's entitlement to operating grants. Thus the intermediary body gave sanction and authority to a procedure developed through the initiative of the university community.
>
> At the same time CPUO took steps to see that undesirable duplication of graduate programs was avoided. First attempts were made through the discipline groups composed of departmental chairmen or their representatives from each university with an interest in graduate work in that discipline. While one or two discipline groups took the responsibility seriously and surveyed graduate programs throughout the province on a systematic basis, after two years it became clear that department chairmen could not be expected to take a wholly objective view of their own departments in relation to those of their colleagues. Under continuing pressure from the Committee on University Affairs and the government, and as the overall funding of universities began to shrink in real terms, the COU established in 1971 an Advisory Committee on Academic Planning of the OCGS to organize planning assessments of each discipline with the use of outside consultants. A powerful spur to progress was the general embargo imposed by the government in 1971 on funding for any graduate program without students enrolled before May of that year until completion of the ACAP assessment for the discipline in question.

Since this was written (1974), the discipline assessment procedures have been tightened up, though not to the degree that the OCUA apparently would like. The "ACAPitation" process results in recommendations regarding each existing program: for continuation, for limitation to a specific area of specialization within the discipline, or for discontinuation. The ACAP recommendation goes to the Ontario Council on Graduate Studies (OCGS) and thence to COU and to the OCUA. On this basis an existing program could, in principle, be declared no longer eligible for funding. However, although there have been a few instances of programs which have been restricted to particular fields, and enough discouragement meted out to cause a couple of withdrawals, no existing program has actually been given the chop. The OCUA has revealed, in discussion with the universities, its frustration on this matter, just as the Minister, in correspondence with the OCUA, has insisted that the progress towards rationalization has been unsatisfactory.

Voluntary cooperation among Ontario universities is "voluntary" only in a special sense. The universities are aware that if they do not coordinate graduate studies themselves, the task may well be done for them either by a universities' grants commission with executive authority (replacing OCUA) or directly by a goverment ministry. Recent developments have underlined this: the Minister warns OCUA that much more tangible evidence of progress towards rationalization of the system is essential, and OCUA adopts the same tone with the universities:

> ...will the controls now in existence [asks the OCUA] be sufficient to ensure the maintenance of a high quality graduate enterprise in Ontario? At present the Council does not know whether the new planning appraisals processes will be rigorous enough to eliminate all of the existing graduate programs which are of less than good quality. Nor can Council be sure that COU will adopt a stricter stand than heretofore regarding the funding of new graduate programs in line with the funding criteria established in Advisory Memorandum 77-VII. Council is, however, in the process of formulating new funding allocation mechanisms which are geared to promoting system-wide stability in the face of declining enrolment.
>
> Council will continue to watch with great interest the progress of graduate planning in Ontario and hopes that the new procedures regarding both existing and proposed graduate programs will be sufficient to ensure the continued development of a high quality graduate enterprise. The maintenance of high quality graduate programs and the elimination of poor quality programs has always been a prime objective of the university system. Now, more than ever, it is absolutely essential

> that this objective be realized through the agencies of COU and ACAP and using the criteria and objectives iterated by Council. Council is committed to awaiting the outcome of the control procedures before taking further action but would not hesitate to introduce further controls, should there be any indication that they are necessary. (Ontario, OCUA, 1978a: 53-4.)

Presumably the threat to introduce new controls means that the OCUA is contemplating recommendations to discontinue the funding of particular programs, without waiting for advice to this effect from the OCGS and the COU. What role ACAP assessments might have in the OCUA's action, if this is indeed what it has in mind, is anybody's guess.

1.5.2.5.4 Other structural changes contemplated by OCUA

Let us suppose that program cutting ("role differentiation") has gone as far as it can. What then? The OCUA apparently supposes that some institutions will still not be viable on their own. In this case there remain, at least in logic, two options. One is to close down whole universities or (where applicable) satellite campuses; another is to amalgamate institutions or to offer basic programs by inter-university consortium.

The outright closing down of any university is considered by the OCUA, for good reason, to be "very likely an unrealistic solution to the enrolment problem." It notes that:

> The options considered must respect the probability that the Government will wish to ensure that all universities in Ontario continue to offer some services. In this context it must be remembered that at the local level universities have a special social impact. They have become important to their adjacent communities, particularly in smaller centres, for a variety of reasons. Universities are labour-intensive, and as a result offer a community employment possibilities and consumer spending. University purchases also stimulate the local economy. A university provides status and prestige to a community and, as well, expands the cultural activities available to its citizens. Finally, universities in smaller centres and in Northern areas improve accessibility for students in the region generally, and in some instances, for students living nearby who wish to,

> or must, live at home. Because these considerations are "community specific", they tend to lead many to believe that an area-based legislature will not close any university. (Ontario, OCUA, 1978a: 43).

In this paragraph the key statement is the one which affirms that a government which rests on an area-based legislature simply will not close down any university. OCUA's recognition of the political realities evidently colours all its thinking, and its recommendations, regarding the structure of the post-secondary sector. It should be noted that what the Council says about the impossibility of "institutional closure" does not refer much to education _per se_, and has nothing at all to do with excellence. Even the argument about improved accessibility seems rather weak, when one considers that some of the most enrolment-vulnerable universities attract only a small proportion of university students who had attended high schools in the immediate area -- e.g., 14%, 16%, 32%, and 37%. (These are "area draw" figures, defined as "...the proportion that each university attracts of the full-time undergraduate students from the local area who attend a university somewhere in Ontario". See Ontario, MCU, 1978: 7.)

These comments on OCUA's position are not intended to express dissent from its judgment. The economic and cultural contribution which universities do for their local communities ought not to be disregarded, even if it were politically realistic to do so. On the other hand, it should be recognized that when a government categoricaly refuses to entertain the idea of shutting down a university its policy has more to do with regional development than with education. This has implications for what the universities can reasonably ask for from government.

The OCUA, though it rules out actually closing down any university, does appear quite ready to see some institutions reduced almost to the condition of the Cheshire cat, of whose existence we are reminded only by the smile. "Council is of the opinion," OCUA declares, "that institutions should be left to adjust their operations to bring them into line with changes in demand for their services, and should be able to live within the resources provided through the current allocative mechanisms even in the event of severe enrolment drops" (Ontario, OCUA, 1978a: 47). Several of the sorts of adjustment it contemplates would involve substantial structural changes: possibly a link-up with CAATs in order to expand polytechnical education, and/or "satellite campus rationalization," and/or the merging of undergraduate arts and science programs.

Expanding polytechnical education. David M. Cameron, in a cogently argued if unwelcomed discussion paper prepared under the auspices of the Ontario Economic Council, has proposed a thorough restructuring of post-secondary education in northern Ontario (Cameron, 1978: 168, 176, and passim). Cameron analyzes some of the difficulties facing Lakehead University, Laurentian and its affiliates (including the three geographically-dispersed colleges), and five CAATs in northern Ontario. His basic proposition (p. 144) is that, "...the population and enrolment base of the north will not permit a post-secondary system to pursue [academic and vocational] traditions in separate institutions."

For northwestern Ontario, Cameron proposes the merger of Lakehead University and Confederation College (both located in Thunder Bay). He supports this suggestion by noting several features of the two institutions. Lakehead University is a successor to Lakehead College of Arts, Science, and Technology, which offered the first two years of university work and a number of diploma courses in technical and vocational subjects. The new university, created in 1962, retained these diploma programs. Thus, when Confederation College was established, it found that, "...several of the most obvious technology programmes -- forestry, engineering, and business administration -- were the property of a university" (p. 75). This provided the basis for a continuing university-college conflict which Cameron proposes to resolve by merging the two institutions into something loosely modelled on Ryerson Polytechnical Institute.

For northeastern Ontario Cameron recommends, "...the amalgamation of CAATs and universities at least in those centres which currently host both types of institution" (p. 176). This would establish a form of polytechnical education in various centres across northern Ontario.

The OCUA is much more tentative than Cameron about expanding polytechnical education, but it advances the same idea. It cautions that, "New programs should only be started in those areas designated by Ryerson and its advisory councils...as having both excessive student demand and ample employment opportunities for additional graduates." Nonetheless, it continues: (Ontario, OCUA, 1978a: 38):

> From the viewpoint of the university system it might be desirable to encourage some universities with neighbouring Colleges of Applied Arts and Technology to develop and offer joint programs leading to applied bachelor's degrees. On the surface this approach might: (1) allow universities with sharply decreased Arts and Science enrolment to use excess physical capacity for polytechnic offerings; (2) use existing university faculty, who might otherwise be considered redundant, to offer the arts and science components of the polytechnic education; and (3) improve accessiblity to polytechnic programs.

OCUA also, while noting that "many believe that the successful polytechnic is a strictly urban phenonmenon," adds (at p. 39):

> If the expansion is to take place in a non-metropolitan area, would Lakehead beckon as the institution most suited to offer polytechnic programs in addition to its regular university programs, given the diploma courses it already offers?

Satellite campus rationalization. In some cases "rationalization" (OCUA's term) means simply "closing down". This possibility is mentioned for the University of Toronto's two undergraduate campuses at Scarborough and Erindale, and for York University's Glendon College. The OCUA also canvasses the following possibility (Ontario, OCUA, 1978a: 45):

> Laurentian and its affiliated university colleges might be integrated into a University of Northeastern Ontario, with four, or even more, campuses to serve the needs of the region. Faculty would be assigned, and programs offered, on a pro-tem basis in response to local needs. In this way the satellite campuses, and off-campus operations, could continue to provide the same, or better, educational opportunities for the region that the affiliates now serve, but the institution as a whole would have more flexibility to respond to changes in student demand. This type of approach would not necessarily reduce the costs of providing university education in Northeastern Ontario. However, it would be in keeping with other efforts to rationalize the system and might well avoid future problems of regional excess capacity or program pproliferation should the affiliates continue to develop along individual institutional

lines.

Merging undergraduate Arts and Science programs. Here OCUA touches another raw nerve, as its own words implicitly acknowledge (Ontaro, OCUA, 1978a: 45-6):

> At geographically proximate institutions, one could visualize a situation where, if enrolment declined sufficiently, only the mass of a combined student body would be adequate to allow maintenance of a broad spectrum of program offerings. Council has already heard the views of Waterloo and Wilfrid Laurier, Carleton and Ottawa on the subject of merger, but nonetheless finds the concept of undergraduate program merger of continuing interest.

That the OCUA should contemplate any of the above structural changes is evidence of its having made a very strong assumption, namely, that universities which are subjected to financial pressure will learn how to fire tenured staff and to cut out financially unrewarding academic programs. Without this assumption, the rationale for structural changes falls away. Why? Because the amalgamation of two unviable operations simply amalgamates two deficits, unless redundant staff can be removed from the payroll. Even if an unviable institution is grafted onto a stronger one, the new conglomerate will be a weaker institution than its healthy parent if it cannot dismiss those of its new staff who are unnecessary to its expanded operations. In other words, structural changes are not substitute for solving personnel problems, and may — for some universities -- worsen them. These problems will have to be handled within each institution individually, through recourse to expedients which the OCUA does not spell out.

So, it turns out that the OCUA has a very simple message, which does not address the main problem which the universities will face in adapting to declining enrolments: (1) Ontario has too many universities; (2) the government cannot admit as much, and cannot allow any one of them to be driven into bankruptcy, and sink; (3) if the government pursues a policy of nearly bankrupting at least some institutions, the universities will be forced into resolving the problems of over-capacity, (4) without depressing academic standards. On this last matter: "... provided the institutions are able to find the correct solutions to their problems, the quality of undergraduate programs in Ontario will be maintained" (Ontario, OCUA, 1978a: 47).

1.5.2.5.5 Universities and the state during the enrolment slump

It is not the intent of this report to recommend any specific changes in the structure of post-secondary education in Ontario or in any other province. Nonetheless, our recommendations on funding arrangements must take into account the structural changes apparently desired by segments of opinion in the Canadian public, in the universities, and in governments. It is necessary to ask whether current funding practices reinforce the characteristics of Canadian post-secondary education which are thought to be unattractive or undesirable or, on the contrary, are working to bring about changes in apparently desired directions.

It is obvious that in Ontario some shrinkage in the capacity of the university system will have to take place; the OCUA has canvassed some of the possibilities. One hopes, though, that continued development will also occur, as new instructional needs are felt and new scholarly and research opportunities arise. The question we must ask ourselves is how the continuing structural changes, essential to a dynamic system, will be brought about.

There has been a tendency in recent years, both in Ontario and in the other provinces, towards a multiplication of external administrative controls on the universities. It would therefore only be continuing an existing trend to implement structural changes by extending those controls. This would further hedge in the autonomy of the universities in respect of academic programming, admissions criteria and standards of performance in degree programmes. This, clearly, is not the option preferred by the OCUA which, in a passage already quoted, has urged that the institutions should be able "to find the correct solutions to their problems". Even more emphatically it is not the opinion of the Minister of Colleges and Universities who addressed the following letter to the OCUA in December 1978 (the letter is quoted in its entirety):

> I have carefully reviewed Advisory Memorandum 78-III, Graduate Planning and Funding.
>
> Inititally, I should like to express my regret that, in Council's judgement, the regulation of graduate program planning and funding must continue for an additional five years. It is with reluctance that I am accepting

the recommendations contained in the Memorandum.

My reluctance should not be considered as a criticism of Council's wisdom in making these recommendations. It is instead, founded on a disappointment that Council has been forced to the conclusion that the university system in Ontario is not yet in a position to re-assume full responsibility for this most central function in the planning and management of the system.

Graduate programs serve to train new scholars and provide resources for advanced research. The goal is to provide opportunities for bright young scholars to make contributions to the scientific, social and cultural life of Canada. This is obviously a matter of taking risks on the potential of scholars - both students and faculty. I do not think it is appropriate for any Minister to make the final decision on whether a proposed program is worth the risk. I would prefer the universities to exercise their autonomy in an area where scholarly judgement is paramount.

I recognize that Council and Ministry involvement in graduate planning has been in effect for at least seven years and that this involvement cannot be terminated overnight. However, I am serving notice that by the end of the first quinquennium Council's and the Ministry's involvement in graduate planning should be limited to verifying that new programs have been successfully appraised. Funding would then be provided within established global limits.

This should not be considered as a signal for the planning of many new graduate programs in anticipation of ending controls. Indeed program proliferation, through spreading existing resources too thinly, would lead to quality deterioration within existing programs. Universities will have to determine a method of allocating funding amongst themselves that will foster excellence. I am not convinced that the existing planning process has been able to accomplish program rationalization or foster excellence.

Council has recognized this by recommending the imposition of tighter criteria for eligibility for funding within the first quinquennium. These criteria will provide a useful discipline which universities should impose upon themselves once central planning is no

> longer mandatory.
>
> I would welcome Council's advice in the future as to how the transition from mandatory planning to institutional autonomy can best be effected during the next five years.

However welcome the Minister's endorsement of university autonomy, if that is what it is, it remains a puzzle how the often-repeated goal of system rationalization can be reconciled with full university autonomy under present arrangements for the financial support of the universities. Perhaps the Minister has already begun to back track. In a letter of March 5, 1980, she wrote:

> ...serious work needs to be undertaken by the system in role differentiation and matching graduate offerings to the accepted role of each institution, as well as in ensuring that all programs submitted for approval have been carefully scrutinized with respect to the four criteria outlined in memorandum 77-VII.
>
> I believe that OCUA is moving in the appropriate direction in its evaluations.... In future years Council will be fully within its mandate to apply the criteria rigorously before recommending that any proams be approved for funding.
>
> In the next two or three years it will be necessary for me to have evidence that the criteria have been met consistently, if I am to realize my desire that the appraisal/assessment system can be used to replace direct government and OCUA involvement in planning and approving the funding of graduate programs.

Be that as it may, it is instructive to take note of an opinion expressed by the Ontario Council on Graduate Studies. The Council observes:

> As resources grow scarcer and more difficult decisions are required on how best to husband these resources, we may need to develop some mechanism that encourages individual institutions to make more decisions involving self-denial and an internal re-allocation of their academic programme priorities. In the present system there are few incentives to do this (Ontario, OCGS, 1978: 5).

The question is, can incentives for the reallocation of academic program priorities be devised? Would appropriate changes in the funding of the universities in Ontario (or in Canada as a whole) create such incentives and reconcile the benefits of university autonomy with the requirements of public opinion and the provincial governments for rationalization and retrenchment in post-secondary education?

Much of the remainder of this report deals with this question. At this juncture we can only observe that failure to provide financial incentives to the universities which will enable them and require them to take tough decisions will simply mean that the tough decisions will be taken elsewhere.

Two factors increase the likelihood of this occurring. The first is that public bureaucracies tend to trust their own judgment more than that of others. Therefore, when they see a problem their instincts are to step in themselves and do what they can to resolve it. This option is particularly tempting when the necessary machinery is already at hand. The second reason is that governments may find some support from within the universities for the emasculation of university autonomy. A university which is adversely affected by changing circumstances may welcome government takeover as an alternative to severe curtailment of its operations or actually closing its doors. Governments, if they take direct responsibility for the problems which the universities face, may well end up spending more than if they give a limited sum to the universities and tell them to make out as best they can. Some universities may attempt to solve their financial problems by lapsing into public receivership.

Thus, in spite of the Minister's endorsement of university autonomy, one cannot take for granted that the relationship between government and universities will grow more distant in Ontario. Some moves may be taken to disband external controls on graduate programming, but if the results of doing so are unsatisfactory to government or to some of the universities -- or to both -- there could well be a sudden and decided shift back towards government control of university development and academic programming.

1.5.2.6 Quebec

During the 1960's Quebec remade its educational system from bottom to top. The changes, which involved the redesign of institutions, educational programs, and the curriculum in almost every subject, had a dual aim: the extension of educational opportunity throughout the society, and the equipping of the Francophones to enter every occupation on an equal footing with English-speaking Quebecers and ultimately to accede to most of the key positions in the Quebec economy.

The goals of the 'sixties remained at the forefront through the 'seventies, and they show every sign of persisting for some years yet. The educational reforms of the Quiet Revolution have been partly achieved but the movers and shakers of Quebec society continue to insist on the need for their fuller realization. The sense of collective endeavour in the building of a new society is still vigorous, and education remains an important aspect, and instrument, of the nation-building spirit in Quebec.

Perhaps this helps to explain why there persists a strangely optimistic mood among those responsible for higher education. In the universities -- at least the French-language ones -- and in the governmental and quasi-governmental apparatus, policy-makers still emphasize growth at a time when one would expect, in view of demographic projections, to find them planning for a sharp contraction of the university sector.

1.5.2.6.1 Linguistic duality

Quebec really has two university systems, one for each of the two major language groups in the province. It is true that they no longer operate, as they did in the past, in complete isolation from one another. The structural differences between them are now less marked, there is a greater tendency for students to cross the linguistic frontier in attending university, there is far more intellectual intercourse between the language sectors, and there are a few joint programs. Nonetheless each sector exists to serve a clientele defined mainly by language; and any planning for the university sector, or predictions about what is in store for it, must take account of linguistic duality. At the present time about 70% of Quebec's 109,000 FTE university students are in the French-language sector.

Partially coinciding with the linguistic division in Quebec's population is another dividing line which historically has been of equal importance for the education system, that of confessionality. About four-fifths of the Quebec population consists of French-speaking Catholics. Serving this population, before the reforms of the 1960's, was a school system unique in North America and probably in the world. The present situation of the French-language universities cannot be understood without making brief reference to the older structures at the pre-university level.

1.5.2.6.2 Catholic education prior to the Quiet Revolution

Until the latter 1960's few of the state secondary schools, in the Catholic sector, began the preparation of their pupils for admission to university programs leading to the liberal professions. Many of the 2000 secondary schools offered only the first two years of the four-year secondary program; and only 60 of them, all located in major urban areas, offered the first part of the classical program, which was the gateway to law, medicine, and the priesthood. The Parent Commission, reporting in 1963, noted that fewer than 7000 secondary-level students, 80 per cent of them boys, were enrolled in the classical course. By contrast, there were about 100 private institutions which devoted themselves almost entirely to the classical course, in which there were more than 36,000 students, 86 per cent of them boys (Parent, 1963: 49, 55).

It was the classical colleges which were the training-ground for the future leaders of French-Canadian society, few of whom long remained in the state secondary schools if they attended them at all. The colleges, which were church-sponsored and frequently clerically staffed at least in part, spanned the secondary and post-secondary levels. The classical course (so denominated because of its emphasis on literary subjects, especially the classical languages) extended over an eight year period after primary school, and culminated in the award of the bachelor's degree (baccalaureat). Thus, the Parent Report notes: "University education in Quebec is supplied by six universities and some fifteen university schools, the latter under their own administration but generally affiliated with the universities" (Parent, 1963: 55).

The principal function of the older French language universities (Laval, located in Quebec City, founded in 1852; Montréal, formerly a branch of Laval: it acquired independent status in 1920) was to prepare young men for the traditional professions. General education and scholarship figured only incidentally in the programs offered by the grandes facultés; students had already received a classical education of some rigour before they reached university level, and advanced studies would normally be conducted abroad or -- by dint of personal perseverence -- independently within the religious orders. It even happened that an official statement of the Université de Montréal in 1954 declared: "Research is not...properly a university activity.... The role of the university is to conserve and to transmit knowledge, far more than it is to increase it." (Trudeau, 1956: 50.)

Science, engineering, and commerce were badly underdeveloped and attracted few of the ablest students. Most entrants to these programs came from the "scientific course" in the public high schools. The study of engineering and commerce was initiated in Montreal at public institutions which early became attached to the University (first to Laval, subsequently to the newly-independent Université de Montréal). These institutions were the Ecole Polytechnique, founded in 1873, and the Ecole des hautes études commerciales, founded in 1907. These two institutions constitute in effect the faculties of (respectively) engineering and commerce at the Université de Montréal. They remain administratively independent; but their degrees and diplomas are conferred by the University. For purposes of the profile of Canadian post-secondary education, Table I-4, enrolments at these two schools are included with the figures given for the Université de Montréal.

1.5.2.6.3 Reforms of the 1960's

The educational reforms of the 1960's transformed both the character and scale of secondary and post-secondary education in Quebec. Three aspects of the reforms affected the universities: the opening up of university-track programs, even for the liberal professions, in the redesigned secondary schools and the newly-created colleges (CEGEPs, or Collèges d'enseignement général et professionnel); the reform of curriculum which placed far heavier emphasis on the natural sciences, social sciences, and technological subjects; and the determination to develop a research capacity in all areas of intellectual enquiry, particularly in applied subjects relevant to Quebec's economic development.

Changes at the structural level, which were aimed at the extension of educational opportunity as well as the reform of curriculum, included the following:

- --the classical colleges were closed down or absorbed into the newly established public secondary schools, or continued to operate as private schools and CEGEPs with state financial support and some state supervision of the curriculum;
- --starting in 1967, a network of CEGEPs was created; there are now 46 of them with an aggregate enrolment of 120,000 (1977/78); 52% of the students are in the "general" or pre-university course; and
- --the new multi-campus Université du Québec opened its doors in 1969/70, and now has some 20,000 FTE students on five campuses. It also runs an instruction-by-television operation, and groups together a number of research institutes and special-purpose schools (notably the Ecole nationale d'administration publique, which itself has branches in Quebec City and Montreal).

1.5.2.6.4 The French-language universities: enrolment prospects and proposed structural changes

The spate of growth which the structural changes of the 'sixties were designed to provoke and to accommodate is now largely over. The secondary schools and the colleges face a period of enrolment decline which reflects the plummeting birth-rates of the 1960's; an official forecast of CEGEP enrolment predicts a 25 per cent drop between 1977 and 1985 (Québec, Ministère de l'éducation, 1978: 32). Estimates of future university enrolment, however, vary widely.

In 1976 a committee appointed by the Ministry of Education, with representatives from each of the universities, foresaw rapid growth in the Francophone sector until 1981/82, followed by a sharp six or seven per cent dip, partial recovery, and then a fairly stable pattern for the period 1985/86 to 1991/92. Basically — though with minor perturbations -- enrolments would settle at about their projected 1980/81 level for the ensuing ten or twelve years. The same study forecast stable enrolments in the Anglophone sector after 1980/81. (Québec, [Ministère de l'éducation] Comité des clientèles universitaires, 1976: 106).

In response to this study, which in some quarters was considered unduly modest in its expectations, a more generous forecast was prepared in the planning office of the Université du Québec. Its author, Michel Robillard, argued that the rising proportion of over-25's in the student body and increasing participation rates in the usual university-age population, would nullify the effects of demographic change on the Francophone sector. Francophone enrolments during the 1980's, said Robillard, would remain fairly stable -- a slight drop in the numbers of full-time students would be more than offset by a continuing increase in the part-time enrolments, such that FTE student numbers would go on rising slowly, even under adverse assumptions about migration patterns. The Anglophone sector, by contrast, might expect a decline of between five and 30 per cent, depending on migration patterns (Robillard, 1976: 173-80).

A third estimate, made by the Ministry of Education in 1978, employs more modest assumptions concerning participation rates among Francophone Quebecers. It predicts about a 20 per cent decline in both language sectors between 1981 and 1996, with a modest upturn in the last years of the century (Quebec, Ministère de l'éducation, 1978: annexe, 12-21).

While the last of these forecasts has apparently informed a government decision to cut back on planned capital expenditures for Quebec universities, there is no evidence that either the government or the universities has made the potential decline in enrolments a central feature of their thinking about the evolution of the university sector. A commission of enquiry on the universities delivered a series of reports in 1979 (Québec, CEU, 1979, 1979a, 1979b, 1979c). These documents, most of which were prepared by special committees, raised some basic questions about the functions of the university, the relations between the university and the state (including financial relations), the coordination and planning of the university sector, the governance of universities, and problems relating to the training of teachers. The issue of changing levels of enrolment was not addressed. Moreover, the commission's "Document de consultation", prepared for interested parties as a guide to the subjects which it expected to be raised in its hearings, made reference to only a single enrolment forecast, that by Michel Robillard -- the most optimistic of those now available (Québec, CEU, 1978: 14). The presentations of the universities before the commission did not focus heavily on the prospective enrolment situation.

Apparently, as far as official and university circles are concerned, the changes envisioned for the French language university sector during the 1980's are less of a quantitative than of a qualitative kind. It is recognized that the great influx of students during the past decade entailed serious problems of staff recruitment and program development. Relationships between the administration and the faculty were strained from the start in the constituent universities of the Université du Québec, and deteriorated badly in the older universities: Laval, Montréal, and Sherbrooke (founded in 1954 as an offshoot of the Séminaire de Sherbrooke, from which it has been fully separate since 1960). Resolution of the problems of morale and of internal management, and the raising of standards in scholarship, teaching, and technological achievement are the priorities now.

In setting about these tasks, the perennial problem arises: whether to build on strength, or, in the name of equitable treatment of institutions and the maintenance of minimum standards, to spread the available resources around? Not surprisingly, there are strong differences of opinion among the Quebec universities on this matter. The older ones adopt a somewhat defensive position, while the constituantes of the Université du Québec are aiming for the sort of development, especially in graduate work and research, which would place them in a position more nearly equal to the longer-established institutions.

The apparently preferred solution to this dilemma is exactly the same as the one selected in most of the rest of Canada: to encourage the selective development of all universities in the province. The pattern envisioned, at least in the Council of Universities (of which more below), is for each institution to have its own areas of specialization in graduate work and research. In the case of the constituent universities at Chicoutimi, Trois Rivières, and Rimouski, the number of lines of development which the Council endorses is severely limited, but none of them is assigned the role of a wholly undergraduate institution. The Council has, however, expressed its dissent over proposal by the central administration of the Université du Québec, to elevate the Centre d'Etudes Universitaires dans l'Ouest Québécois (CEUOQ: it has centres at Hull and at Rouyn) to a position comparable to that of the four constituantes (the above three, plus the Université du Québec a Montréal, or UQAM). (Québec, CU, 1976: 230-255, 270-276.)

1.5.2.6.5 Prospects for the English-language universities

Of the English-language university sector in Quebec, the least that can be said is that growth and development are not major pre-occupations. The roles of each of the three institutions are relatively well defined, and can be summarized as follows:

--McGill is the leading English language university in Quebec. Its full-time enrolment in 1978/79 was approximately 15,000 students, a little less than Laval and the Université de Montréal. It is the main English language centre for graduate studies, professional schools, and research in the province.

--Bishop's is a small, largely residential, undergraduate university located at Lennoxville (near Sherbrooke) in the Eastern Townships.

--Concordia, located on two campuses in Montreal, is an amalgamation of the former Sir George Williams University (itself the outgrowth of educational work sponsored by the Montreal YMCA), and Loyola College, and an English-language Jesuit institution originally an offshoot of Laval. It continues to place heavy emphasis on part-time studies, having almost three times the number of part-time students as does nearby McGill. In the past two decades it has developed graduate programs and a research capacity in several disciplines in the arts and sciences, commerce, and engineering, in many cases working out co-operative arrangements with McGill.

As has earlier been remarked, the English language universities no longer operate entirely in isolation from their mainly Francophone milieu. Nor, however -- with the possible exception of Concordia -- have they become institutional expressions of Quebec's bilingual and multicultural character. One senses that, particularly in the case of McGill, the English language universities share the current malaise of the Quebec Anglophone community: nervous, and yet -- with important exceptions -- somewhat stand-offish, looking outward to the Anglophone majority in the rest of Canada. Slightly more than a quarter of the full-time students registered in English-language Quebec universities come from outside the province (Québec, Ministère de l'éducation, 1978: Annexe, 1-2).

Nonetheless the English-language universities are now drawing a fair proportion of their students from the Francophone community. For example, it is estimated that about 18 per cent of McGill's students are French-speaking. The proportion of Francophones has been rising steadily, and is unevenly spread across the faculties.

This diversity in clientele makes it especially hazardous to gauge the prospects for the English language universities in Quebec. One element of uncertainty, obviously, is the position of the Quebec Anglophones and the migration patterns of the next decade which will affect the size and composition of the English speaking community in Quebec. Significantly, McGill (for one) appears to draw about 65 per cent of its students from this group. Any substantial Anglophone emigration would therefore place McGill, and presumably also Bishop's and Concordia, in a very precarious position. (Note that Robillard's enrolment forecasts, referred to above, foresee a decline of between five and 30 per cent in the clientele of the English language universities.)

Finally, regarding the prospects for Quebec's English language universities, there is the question of enrolment patterns among the Quebec Francophones: will they become increasingly likely, or less likely, to want to study in English? My own guess is that more rather than fewer will want to do so, but that is sheer conjecture, buttressed by an observation of recent trends.

Let us return, though, to the position of Quebec's French-language universities. They appear still to be thinking in terms of selective expansion, and this trend has the quasi-official sanction of agencies which advise the Minister.

1.5.2.6.6 The planning and coordination of university development

The bodies responsible for university planning in Quebec are the (advisory) Council of Universities, a Comité conjoint des programmes, and several ad hoc committees to assess university performance by discipline grouping.

The Council of Universities was established by law in 1968, and consists of 17 members appointed by order-in-council. Nine of them are named after consultation with university administrations, faculty associations, and student bodies. In practice, almost all the universities are represented, some of them by their rector or principal. It is not, however, a universities' body: the other members are drawn from the business world, the trade unions, and the civil service.

The Council has been active in running an "indicative planning" operation analogous to the sort of economic planning which has been practised in France for several years. The process consists largely in an exchange of information by major institutions (in this case, the universities) so that it will be easier for each of them to plan its development in rough knowledge of what the others are doing. It is an uncertainty-reducing exercise. In addition to that, the planning agency identifies community needs which should be met, and prods the institutions to get on with it.

The body which is responsible for overseeing the details of university development is the Comité conjoint des programmes. This committee was established in 1970 by written agreement between the Council and the Ministry of Education; about half of its members are university administrators. It evaluates university proposals for new programs. (It also nominally has the task of reviewing existing programs, but it has not been active in this area.) Each submission consists of three dossiers: one on the intrinsic quality of the program, one on the need for it, and one on financial aspects. The university itself is responsible for seeing to the assessment of the quality of proposed programs, a responsibility which most of them fulfill by referring each proposal to an evaluation committee of the Conference of Rectors and Principals. The constituent universities of the Université du Québec, however, do not go this route: instead they refer proposals to the university's central Conseil des études. There is thus no single body for evaluating new academic programs being put forward by the Quebec universities. It is also notable that, although programs must have been approved by the Comité conjoint in order to receive funds from the Ministry of Education (see Section 2.7.2.6, below), a university may choose to go ahead without approval, and there have indeed been cases where this has happened. Students enrolled in these programs are included in the "student count" which is undertaken for funding purposes.

Between 1970 and 1976, the committee made 169 recommendations: 60 approvals, 29 conditional approvals, 11 conditional approvals together with the imposition of a year's delay, and 69 deferrals or refusals. (Some of the refusals may have reappeared in the other categories in later years, after revision and re-submission) (Quebec, CU, 1976: 41). The number of programs approved dipped somewhat between 1973 and 1975, but the data show no overall trend between 1971 and 1977 (Quebec, CEU, 1978: 67).

The final planning instrument is a series of ad hoc committees to review specific discipline areas ("les opérations sectorielles"). Three of these committees have reported so far: pure sciences, applied sciences, and health sciences. Their mandate has been to survey the operation of existing programs and the degree of coordination or duplication among them. One committee at least has made some sweeping recommendations: embargoes on the intiation of new programs, the abolition of certain existing programs and the amalgamation of others, and changes in still others -- selection of specific objectives or areas of specialization. (Québec, CU, 1976: 12). The opérations sectorielles, however, do not appear to be integrated into the process for determining university grants, and one may doubt the effectiveness of the whole exercise.

This may in itself be no bad thing; but the whole set-up leaves this observer, at least, a little apprehensive. Quebec universities have been in a period of especially rapid expansion, and the French language ones are planning for further growth, albeit at a much slackened pace. The present structures appear to have worked relatively well up to now, partly because they incorporate escape valves if a university is, in its own view, unfairly held back by external administrative action. However, the mechanisms are now in place which, with a little tightening up of procedures, would quickly destroy the autonomy of the universities. The likelihood of this happening would appear to be quite high, if the suppositions of continued growth in the system turn out to be unfounded.

1.5.2.7 The Maritimes

The Maritime provinces are grouped together in this profile of Canadian post-secondary education because of the existence of the Maritime Provinces Higher Education Commission (MPHEC). The Commission, which is responsible to the Council of Maritime Premiers, performs financial and planning functions in relation to the universities of New Brunswick, Nova Scotia, and Prince Edward Island.

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1.5.2.7.1 Structural characteristics

According to Jeffrey Holmes (ICED, 1978: 38):

> The four Atlantic provinces [i.e., the Maritimes and Newfoundland] have the largest number of degree-granting institutions per capita in the world. The nondegree sector, however, is the weakest in Canada. And the majority of all post-secondary institutions in the region are found in Nova Scotia. As of July 1, 1977, the Atlantic region had seventeen degree-granting institutions and thirteen other post-secondary institutions to serve a population of little over two million.
>
> The region has the oldest English speaking universities in Canada, and the great variety of institutions stems from religious differences of the nineteenth century. These differences have been replaced by local or regional jealousies which, although not as fierce as those of faith, have effectively hindered the development of any real system of post-secondary education.

Of the 12 universities and colleges included in our profile of post-secondary education -- specialist institutions not offering basic undergraduate arts and science programs have been excluded from Table I-4 -- the majority are small, essentially liberal arts institutions.

The leading centre of higher education in the Maritimes is Dalhousie University. Although it is of modest size (7000 full-time students in 1978/79) it has a high percentage of graduate students and a substantial reputation in some areas of research. It is the main centre in the region for training in the professions. Dalhousie also has links with other degree-granting institutions in Halifax: Saint Mary's University, Mount St. Vincent University, the Nova Scotia College of Art and Design, and the Nova Scotia Technical College (engineering and architecture). This network of institutions in the largest urban centre east of Montreal is what gives higher education in the Maritimes a regional focus. Its presence presumably goes a long way to explaining the rather large influx of students into Nova Scotia (on this, compare data on educational attainment by province, and on participation rates, Sections 1.2 and 1.3.2, above).

New Brunswick now has two principal universities, the English language University of New Brunswick with campuses in Fredericton and St. John, and the Université de Moncton which has absorbed a number of previously independent classical colleges and has two small campuses in addition to its main one at Moncton. Both of these universities have professional faculties and engage in specialized research activities. Certain programs, such as forestry at UNB, attract an interprovincial clientele; but for the most part these universities are largely provincially oriented institutions.

The striking thing about the structure of higher education in the Maritimes is not the persistence of a number of relatively small institutions offering a very limited range of courses -- most provinces have at least some colleges and universities of this type -- but the absence of any very large university with highly diversified academic programming and large-scale, costly research programs. West of the Maritimes, Saskatchewan is the only province without at least one university which is twice the size of Dalhousie or larger. Cultural attitudes in the Maritimes, as well as the limited population base and its spatial distribution, have discouraged the emergence of a single dominant university, and political divisions have prevented any forced development in this direction. In the result, the initiation of specialized academic programs and the acquisition of very expensive facilities or equipment has necessarily been divided among the universities of the region.

1.5.2.7.2 The MPHEC and the provincial governments

In 1974 the Council of Maritime Premiers created the Maritime Provinces Higher Education Commission to perform, on an integrated regional basis, a mixture of planning, advisory, and executive functions in relation to the universities. The purpose of the MPHEC, as set out in legislation passed by each of the three legislatures, "is to assist the Provinces and the institutions in attaining a more efficient and effective utilization and allocation of resources in the field of higher education." Among the duties assigned to the MPHEC are the following (MPHEC, 1975: 52-3):

--to make recommendations to the Council [of Maritime Premiers] as to the advisability of establishing or supporting new courses, programmes, and institutions, and of terminating support of existing programmes;

--to assist and encourage institutions in establishing or continuing co-operative arrangements among themselves;

--to encourage and facilitate the establishment of regional centres of specialization....

In fulfilling its mandate for planning the development of a regional system the MPHEC has relied upon program proposals submitted by the universities, and upon annual five-year projections of enrolment and programming prepared by each institution. From these documents, a profile of existing and proposed programs is assembled. The first such profile showed, according to the MPHEC, that "...present programme offerings do not, in general, represent extensive duplications in the region" (MPHEC, 1977: 15). Accordingly, the Commission has not had to concern itself with cutting back existing programs, and its planning activities have dwelt on proposed innovations.

The universities' 1976 submissions to the MPHEC revealed their intention to proceed, if they could obtain approval from the Commission, with the introduction or restructuring of some 150 programs. Some of these may have been put forward in a "now or never" spirit, essentially reflecting a fear that the Commission might become increasingly negative towards program innovation. Be that as it may, its preliminary reaction was that it would delay consideration of proposals in certain areas, pending a region-wide survey of the subject(s) concerned; that some of the proposals would not be approved during the 1976-1981 planning period; and that it would give serious consideration to the remainder, some 60 programs (MPHEC, 1977: 16-25). The record of approvals so far stands at:

1976/77 — 41, of which 25 were "restructured programs"

1977/78 — 13, of which 6 were "restructured programs"

1978/79 -- 9, of which 5 were "restructured programs"

1979/80 -- 13, of which 10 were "restructured programs"

It is noteworthy that prior to approving any new program the Commission obtains an assessment of its academic merits from the Association of Atlantic Universities' Committee of Academic Vice Presidents. Intrinsically meritorious programs are approved if they do not result in duplication or waste of resources, and if they widen accessibility to instruction in the subject within the Maritime region. The underlying policy is to provide as wide a range of programs within the region as can reasonably be afforded.

According to the MPHEC (1977: 16):

> The most critical areas of apparent existing and potential duplication have been identified, and rationalization and planning efforts have been initiated. Either completed, or nearing completion [April 1977] are reports and/or regional plans for:
>
> > Physical education, recreation, and related subjects;
> >
> > Legal education;
> >
> > Teacher education;
> >
> > Engineering education;
> >
> > Programmes concerned with urban and regional planning;
> >
> > Programmes covering environmental concerns.

The potential for regional planning, however, is quite limited: the MPHEC lacks the necessary political backing. As an interprovincial body with only limited executive powers, its major recommendations must be endorsed or at the very least acquiesced in by three provincial governments. Jeffrey Holmes, formerly executive director of the Association of Atlantic Universities, comments (ICED, 1978: 61):

> ...the MPHEC's very existence hangs on its not grossly offending the universities or the governments. Those governments themselves are subject to pressures from, and removal by, their provincial electorates, and major decisions -- for example, that regarding the location of a veterinary college -- will continue to be made on political rather than on academic grounds.

The phrase "location of a veterinary college" alludes to the decision to locate a new (largely federally funded) school of veterinary medicine at the University of Prince Edward Island, a move which was bitterly resented by the Nova Scotia government and accepted by it only under an explicit and public threat by the Island province to withdraw from the MPHEC if the new facility was located (as originally announced by the federal Minister of Agriculture) in Nova Scotia. The PEI claim to the school was based partly on claimed technical advantages of the Charlottetown location, but also on grounds of equity or regional balance. Many young people from the Island go to university in Nova Scotia and New Brunswick, and the regionalization of higher education stands to accentuate this trend. One of its consequences is an outflow of purchasing power from PEI, and installation of a school of veterinary medicine at Charlottetown would do much to redress the balance.

In general, the MPHEC has shown itself prudently sensitive to the requirement of a fair interprovincial distribution of specialist academic programming, but this is not the only restraint on planning for post-secondary education on a regional scale. The provincial governments insist on maintaining direct control over decisions on the creation, amalgamation, or (presumably) the closing down of degree-granting institutions. In addition, some non-degree-granting institutions come under the aegis of the MPHEC while others are controlled by provincial departments of education, thus making it difficult to co-ordinate various types of post-secondary institutions within a single system. The desired length of undergraduate studies (three years or four: it depends on the length of the high school program) has also been the subject of some interprovincial difference of opinion.

Also contributing to the difficulty of the planning and management of a regional post-secondary system is the apportionment of costs among the three provinces. Originally each province, in effect, funded the institutions within its own borders, though interprovincial transfers were arranged in order to finance health training programs on a regional basis. In its 1975/76 report, however, the MPHEC (1976: 32-33) noted that:

> ...the future achievements of a regional approach to higher education will significantly depend on the development of a successful approach to regional funding.
>
> The consideration of a regional financing approach is one of the most difficult tasks faced by the MPHEC because it is complicated by differences in the levels of government support among institutions and from pro-

> vince to province.... [The latter] are due to many factors including historical patterns of development, past provincial priorities and perhaps most importantly, the development of post-secondary institutions on a provincal, rather than a regional basis.
>
> There are other complicating factors which have delayed the Commission's development of a regional funding mechanism. These include the interprovincial movement of students, foreign students, admission policies, differing federal-provincial post-secondary financing arrangements, and the location of regional institutions.

It is evident from these comments that regional funding and regional planning for post-secondary education are necessarily interdependent. An important step in the direction of regional funding was taken in 1977/78 when, for the first time, the cost of university operating grants was apportioned among the provinces according to a formula based in part on provincial participation rates. The formula was such as to obviate the need for interprovincial transfers to finance health training programs, and to compensate a province which received a net influx of students. The new formula was to be phased in over a five year period. The phase-in period, however, was only into its second year when the formula was scrapped (effective 1979/80). As the MPHEC explained in a press release (March 6, 1979): "Under the new arrangement formulated by the Commission, each province provides the [sic] grants to the other two provinces in respect of any of its students enrolled in programmes in these provinces that are not offered in the province of residence". In effect, the "new" is a return to a somewhat rationalized status quo ante, and marks a significant defeat for the idea of regional funding and the regional planning of higher education. It is difficult, however, to see how a fully operative scheme of regional funding could have been successfully introduced, since one immediate consequence of the experiment was an aggressive recruiting campaign, targeted at U.P.E.I. students, by some mainland universities.

1.5.2.7.3 The enrolment outlook: Prospective strains on regional planning and coordination

"The total pool of post-secondary students", notes the MPHEC (1978a: 15), "is expected to decline by 25 to 30 per cent in the next 15 years". This estimate is consistent with the demographic projections noted in Section 1.3.1, if participation rates remain constant.

The MPHEC has chosen, perhaps wisely, not to allow these sombre enrolment prospects to prevent it from supporting those new initiatives in academic programming which are consistent with the needs of the society and with likely student preferences. Nonetheless it is obvious that in the fairly proximate future, facilities for university instruction will reveal themselves to have been badly overbuilt in some academic areas. This situation will require a general reduction in scale within individual institutions, or, in the alternative, the amalgamation and/or closing down of programs or of entire universities. It is impossible to imagine how, under present arrangements, any of these eventualities could come about other than with serious disruption of higher education in the region, and with declining standards in academic performance.

The usual problems of contraction will be experienced by Maritime universities, though in their case two special conditioning features obtain. One is that the size of many of the existing institutions is already extremely small, making adjustment within individual universities extremely difficult; the pressure to close down some of them altogether will be correspondingly greater. Additionally — in this the Maritimes are evidently unique in Canada -- the planning and coordination of universities occurs at least nominally on an interprovincial basis. The strains on regional planning have already been noted, and it is impossible to imagine that a period of declining enrolment could avoid increasing those strains substantially. There will be strong, perhaps irresistible, pressures on provincial governments to assume direct responsibility for financially insolvent universities, thus creating three state-directed provincial systems, each suffering from extreme problems of scale.

1.5.2.8 Newfoundland

Memorial University, located in the provincial capital of St. Johns, is the only degree-granting institution in the province. In 1975 a regional college, offering the first two years of university instruction as well as some diploma programs, was established at Corner Brook; other colleges of the same character may subsequently be created. In the meantime, the university has, as might be expected in a province with a widely scattered population, a large and vigorous extension program, including correspondence and video courses.

Memorial University, with 6 200 full-time students, is of a size comparable to Dalhousie and the University of New Brunswick. Its programming has been extended, for example in the creation of a medical school, to meet so far as it can the needs of the province for highly qualified manpower without sending students elsewhere for advanced training. The per-student costs in some cases are large; but it has been reasoned that the only other practicable solution to the province's manpower requirements -- a contractual arrangement with a university such as Dalhousie or McGill -- would encourage the permanent emigration of the most talented young people in the province. Evident provincial needs have also prompted the development of a fairly wide range of research programs. Accordingly, the medium-low proportion of graduate students in the full-time student body (7.2 per cent) probably gives an unduly modest impression of the university's involvement in specialized programming and research.

If there is a single province in Canada where it is uncommonly hazardous to predict future enrolments, that province must be Newfoundland. There are two reasons for this extreme uncertainty. One is that the difficulties of geographical access to university are particularly acute in Newfoundland and Labrador, and further improvements to the delivery of university programming could easily have a big impact on participation rates. Secondly, population movements are impossible to predict. The staple-producing economy of the province is subject to wide fluctuations. One factor in this is the availability of resources: fish stocks within the extended economic zone, mineral resources, and above all the prospect for oil and gas discoveries. Another factor is changing methods of resource exploitation, as technological change can easily destroy the livelihood of much of the existing population, but can just as easily create new opportunities which may cause a large influx of job-seekers. Educational planning in all parts of Canada should acknowlege the likelihood of unforeseen population trends and changing participation rates, but nowhere is this more true than in Newfoundland.

1.6 UNIVERSITY AUTONOMY AND THE ROLE OF GOVERNMENT

As Canadian universities enter the 'eighties, they face difficult times. Few institutions can expect any growth in enrolment, and most will have to adjust to an overall decline in student numbers or at the very least to dwindling student interest in some programs and subjects while demand shifts to other areas. An optimist would describe the universities' financial prospects as ranging from dismal to bleak.

The history of the past decade gives us a pretty fair indication of how the provincial governments are likely to act during a period of no-growth or shrinkage in the universities. Our survey of structural changes in the network of Canadian universities during the 'seventies has identified two main features of public policy. On the one hand, the provincial authorities have demonstrated their concern with the continued development of systems of higher education to meet provincial needs: the improved delivery of instructional services to geographically remote areas and to disadvantaged groups, continued program development within the province or region to meet manpower needs and (in several provinces) to avoid the emigration of the most talented of the province's youth. On the other hand, the provinces have also shown increasing concern about the costs of supporting the universities. As excess capacity in provincial systems appeared, public pressure for expansion of the universities evaporated and was replaced by demands for controls on expenditures; government concern over mounting costs was reinforced by the proliferation of advanced and specialized academic programming.

Both of these policy objectives, but especially the desire to keep costs under control, led to the imposition of administrative controls over the introduction of new academic programs. A feature of these controls has been that university initiatives in programming must not only be shown to be academically sound, but must be shown to meet a provincial need defined essentially by manpower considerations. There have also been steps taken by Alberta and British

Columbia to regulate university admissions policies, in order to achieve fuller integration of the universities within a post-secondary education system that includes colleges with university transfer programs.

The universities have either acquiesced in or actively supported provincial action to control academic programming. No doubt they have done so in part because they cannot afford to offend a government that supplies the bulk of their income; but many universities appear to have welcomed an external authority to ration the introduction of new academic programs. They have noted that in every province or region the government and its agents or advisors for university affairs have opted for the dispersal of advanced and specialist programming, and the newer universities see in this practice some support for their ambitions for development relative to older, larger, and frequently more wealthy institutions. In unregulated competition they would probably fare less well than in a system which operates under administrative controls. However, the costs of such controls -- in terms of excellence -- are likely to mount in the next few years.

Our outlook on the 'eighties suggests that the period of controlled expansion is probably over in most or all provinces. Provincial governments will almost certainly become concerned not only with rationing the introduction of new programs, but with findings ways of requiring the elimination of some of the existing ones. Probably even more important, structural changes will be ineffective in achieving the financial savings which will be desired and indeed demanded of the universities. The internal management and governance of the universities will have to undergo changes of kinds which hitherto they have shown little capacity to achieve.

Cutbacks in academic programming, unless accompanied by action to diminish the severity of staffing problems, will be ineffective in accomplishing the adjustments called for by no-growth or shrinkage. The key reason for this is that staff in positions which have become redundant cannot simply be shifted to new responsibilities. Moreover, innovation and development must occur at the same time as there is retrenchment in other areas. The universities cannot simply be put "on hold" for a decade or more.

As we have noted in Section 1.4, the collegial principle, which is the essential principle of governance for a university committed to achieving excellence, makes the necessary changes all the more difficult to accomplish. It is entirely possible, and I am afraid even probable, that over the next decade governments' concern to keep the costs of higher education in line, combined with a commitment to prevent any post-secondary institution from closing its doors, will result in the imposition of administrative controls over the universities in matters that extend far beyond the introduction of new academic programs or even the redesign or expansion of existing ones.

The internal allocation of funds, staffing, class sizes, and admissions policies may all come under scrutiny and supervision, present intentions to the contrary notwithstanding. It is important to recognize that all provincial governments do appear committed at present to avoiding responsibility for the direct management of the universities. What concerns me, however, is that the policies adopted during the past few years do not appear to be effective in meeting the objectives which have already been endorsed by provincial governments, and that these objectives will become all the more pressing as post-secondary educational institutions ride the demographic roller-coaster. The public authorities, frustrated by the apparent unresponsiveness of the universities to exhortations and warnings to take their own affairs in hand and to cooperate with government in the pursuit of cost-control and structural change, may feel it necessary to subject the universities to increasingly tight and pervasive controls. There are hints of his occurring already, as parts of section 2.7 will show.

To facilitate the adjustments which no-growth or shrinkage entails will require of the public authorities during the years ahead a sympathetic appreciation of the universities' situation and of their capacity to adapt. They must adapt; they will rightly forfeit public respect and public funds if they do not. But equally, they have a right to expect that governments should understand that some administrative and financial arrangements will ease, and others will impede, the adjustment process as universities wrestle with problems of a different order from those they have dealt with in the past.

chapter two

UNIVERSITY FINANCE AND THE DEVELOPMENT OF CANADIAN UNIVERSITIES

It has been said that the principles of university finance are very simple: the universities take everything they can lay their hands on, and they spend it all. This is not incorrect, but it leaves out a good deal besides the rhetoric. Certainly, Canadian universities would like to know how to augment their incomes at a time when governments are cutting back. They would like to be able to tap other sources of income, and they would like to pry open the treasury vaults. This report, however, offers no counsel to the universities on how to sell a case. Rather, what is undertaken here is to survey and comment on the various ways by which a modern industrial society can support its universities.

The role of government is central to all aspects of university finance. Some of the financial resources available to the universities are channelled to them through the direct or first-instance consumers of their services: the students and the purchasers of contract research. Even in the case of these sources of income, however (and they constitute a relatively small proportion of the total) the funds may ultimately be derived from taxation or other government revenues. A portion of government grants and subsidized loans to students turns up in university coffers as fees income. Moreover, much of the contract research that universities undertake is commissioned by government. One may justly conclude that the universities' ability to raise an income from the sale of their services very largely reflects government policy.

The centrality of government in university finance is underscored by an added consideration, namely, that in most provinces tuition fees are set by government; in any case the magnitude of the universities' fees income is taken into account in determining government grants. The grants may also to some extent be influenced by the availability of private benefactions and the universities' income from the sale of non-instructional services (mainly research). Finally, inheritance laws and taxation policy regarding charitable donations affect levels of private giving. Thus almost every aspect of university finance is related to government policy.

It makes a great deal of difference to the universities whether the funds they obtain come directly from government or as government-subsidized income from the sale of their services. For that portion which comes directly from government, it makes a big difference whether it takes the form of a general purpose grant, a subsidy for the conduct of research, or special-purpose payments other than for research. Obviously, too, in the case of operating grants, the rules for distributing the available funds to the universities -- if there are any rules -- are of great importance for the way in which the university sector develops and the ways that each university performs its functions. And finally, in the context of a federal country such as Canada, the effects of public funding will depend on whether all the funds come from one government, or some of it is federal money and some provincial. The greater the diversity in sources and types of funding, the greater the autonomy of the university.

The choices made by governments regarding the various "ways and means" of funding higher education will bear heavily on the universities' capacity to take their own affairs in hand in a period of financial stringency, and to run an efficient operation while maintaining or raising standards in the conduct of teaching and research. That is what an exposition of the principles of university finance entails; and that is what this report is about.

Our concern here is not with techniques of financial management of university systems. There are now quite a few studies of this kind. They presume that the major decisions about the services to be provided through the universities are taken by government, and that government bears the major responsibility for the efficiency of university operations in accordance with the tasks assigned to them. This report does take as axiomatic that the universities must be responsible to the public, through government, for the expenditure of public funds; but it is based on a view of society which is rather more pluralist than the view implicit in the literature on techniques of financial management. Our focus is on the universities; the focus of that literature is on government.

In keeping with the primary focus of this report, we now undertake to survey the various sources of university income. For each source we discuss the impact of governmental decisions on the structure of the university sector and on the way that the universities conduct their affairs.

2.1 SOURCES OF UNIVERSITY INCOME: AN OVERVIEW

As is generally known, Canadian universities are financed largely from the public purse. Student fees, which thirty years ago were the largest single source of operating income, now account for scarcely more than a tenth of the current revenue of a "typical" university. More than two-thirds comes from general-purpose government grants, an overwhelming proportion of which are provincial. The conclusion is easily reached that the universities are, realistically speaking, part of the provincial public sector. Indeed, for certain purposes they are so regarded in law. It would be a gross mistake, however, to disregard the various sources of income which supplement operating grants and tuition fees. Although other sources, notably research funds and income from endowments, contribute only marginally to university budgets, they do much to establish the specific character of individual universities. It is income at the margin which promotes diversity within the system and conduces to excellence.

Nonetheless the trend observable over the third quarter of the century is from plurality of sources of income to the preponderance of a single source, the provincial government. This is evident from the accompanying tables (Table II-1 and II-2), which show the proportions of university operating income from each of several sources at five-year intervals between 1921 and 1961, and annually thereafter.

Interpretation of the data presented in the tables may be facilitated by the notes which follow. It must be emphasized that the tables, and this report as a whole, cover only operating income and do not deal with capital budgets.

Reliability of the data. The university financial statistics published by Statistics Canada are derived from college and university reports to the Canadian Association of University Business Officers (CAUBO), which is an affiliate of the AUCC. There persists some diversity in university accounting and reporting systems, particularly in the area of sponsored research income. This diversity introduces an element of error into all Statistics Canada data on university finance. Moreover, in the case of federated universities, or of universities with affiliated colleges, it is sometimes difficult to disentangle reports from these related institutions.

A further source of error derives from the fact that a few of the smaller colleges are not members of the CAUBO. The Dominion Bureau of Statistics (precursor to Statistics Canada) estimated that as recently as 1955 its university financial data covered institutions representing only 80 per cent of the total full time university-level enrolment in Canada. Coverage now, however, is virtually complete.

Particularly in the case of historical series, then, there is a margin of error or non-comparability in all available university financial data. Nonetheless the data reported in Table II-1 and II-2 are almost certainly accurate enough to give a fair picture of the major trends in university finance. Further comments on the matter of reliability will be made in the appropriate contexts, in subsequent sections of this chapter.

Ancillary enterprises. Ancillary enterprises are business activities undertaken by the universities or by institutions owned by universities. Examples are: university residences and food services, conference centres, and (occasionally) production-oriented enterprises.

The data in Table II-1 and II-2 exclude figures relating to ancillary enterprises, largely because residences and food services may be presumed to account for a substantial proportion of the sums reported under this heading. These are not activities which might enable a university to carry part of its overhead related to the performance of its academic functions.

Federal and provincial grants. It is noteworthy that, notwithstanding the wide attention given to federal subsidies to universities in the period between 1951 and 1967, the provincial grant has at all times vastly outweighed the federal one. An exception must be made for the Atlantic provinces during the 1960's, when temporarily the two levels of government contributed about equally to the support of universities in this region. Until recently the Atlantic universities, especially in Nova Scotia and New Brunswick, depended more heavily than those in other parts of the country on fees, gifts, endowment income, and budget supplements from religious organizations; the role of the provincial government was correspondingly smaller than in other provinces. Conversely, west of Ontario, each province

TABLE II-1

UNIVERSITY OPERATING INCOME BY SOURCE
SELECTED YEARS, 1921-1961

		Percentages				
		Government Grants				
Fiscal Year Ending	Total Operating Income ($m) (1)	Provincial and Municipal (2)	Federal (3)	Fees (4)	Endowment (5)	Other (6)
1921	9	49.7	*	20.1	16.5	13.7
1926	11	43.7	*	21.2	19.1	11.0
1931	14	49.6	*	23.8	16.2	10.4
1936	13	40.2	*	33.5	14.7	11.6
1941	16	42.4	*	32.0	12.8	12.8
1946	26	30.1	10.5	37.9	9.3	12.2
1951	41	42.0	4.2	34.6	7.7	11.5
1956	80	41.1	15.0	26.9	5.8	11.1
1961	176	43.7	19.0	26.1	3.0	8.2

* Not compiled separately, amounts very small.

Sources: Canada. Dominion Bureau of Statistics. Survey of Higher Education 1952-1954, and 1961/62. (The Survey for 1961/62 has catalogue number 81.211.)

TABLE II-2

UNIVERSITY OPERATING INCOME BY SOURCE
1962-1979

		Percentages				
		Government Grants				
Fiscal Year Ending	Total Operating Income ($m) (1)	Prov. and Mun. (2)	Federal (3)	Fees (4)	Sponsored Research (5)	Other (6)
1962	211	37.2	11.9	26.7	12.6	11.6
1963	240	37.8	15.1	26.0	12.8	10.3
1964	283	38.6	12.2	26.7	13.0	9.4
1965	343	38.0	10.5	26.2	13.9	11.5
1966	426	40.9	8.6	25.9	14.4	10.1
1967	582	41.1	14.0	22.3	13.9	8.7
1968	741	57.0	1.7	19.5	14.1	7.7
1969	906	58.9	1.6	17.9	14.1	7.5
1970	1,085	62.4	1.5	16.5	13.2	6.5
1971	1,223	64.5	1.3	15.6	12.4	6.2
1972	1,347	67.8	0.2	15.5	12.4	4.1
1973	1,398	67.6	0.1	15.5	12.7	4.0
1974	1,549	68.8	0.3	14.9	12.5	4.6
1975	1,793	68.8	0.3	13.7	12.5	4.7
1976	2,180	71.4	0.3	12.6	11.7	4.0
1977	2,488	71.4	1.4	11.7	11.4	4.0
1978	2,632	71.8	0.4	11.8	11.9	4.1
1979	2,893	71.3	0.6	11.2	12.3	4.6

Sources: Statistical Canada. University Financial Statistics. Annual. (Catalogue number 81-212).

AUCC: Financial Statistics of Universities and Colleges, for fiscal years 1977, 1978, and 1979. ("Prepared by Statistics Canada for the Canadian Association of University Business Officers" [CAUBO]).

supported a public university which from the beginning was very largely dependent upon provincial government support.

Comparability of Tables II-1 and II-2. In Table II-1, government assistance to universities for research purposes was included under the general heading, "Government Grants". In Table II-2, there is a separate column for "Sponsored Research Income". This explains the apparent drop in government grants as a percentage of university revenues between fiscal 1961 and fiscal 1962 (provincial and municipal grants, down 6.5%; federal grants, down 7.1%, for a total drop of 13.6%; this compares with sponsored research income in fiscal 1962, 12.6%).

Some government money included in Table II-1 may also have been shifted the the "Other" column in Table II-2, as figures in this residual column rise from 8.2% to 11.6% between fiscal 1961 and fiscal 1962. Most of this difference, however, is explained by the fact that Table II-2 does not list endowment income (3.0% in fiscal 1961) under a separate heading.

Sponsored research income. Most research support is not, strictly speaking, university income; the presumably large proportion consists of grants and contracts awarded to individual faculty members. Most grants and contracts are administered by the university in trust.

It may accordingly seem questionable to have considered sponsored research income as if it were part of the universities' financial resources. The reason for doing so is that research is integral to the business of the university, and the wisest principle to adopt in a survey of university financial resources is to include everything that enables a university to perform its academic functions. Indeed, the regrettable thing is that the figures for sponsored research income are incomplete. They exclude (at least in some universities) grants not administered by the university, faculty consultancy income, and conceivably some research monies classified under ancillary enterprises.

It is notable that sponsored research income has been remarkably stable as a percentage of the total since 1961/62, fluctuating as it has in the 12 to 14% range. Perhaps, however, this conceals a decline, as it is reasonable to suppose that the universities have become increasingly concerned to report all their research activities. One incentive to full reporting of research income is that some people may be inclined to take a dollar figure as a proxy for research effort and therefore as an index of prestige. If these suppositions are correct, university accountants may have become more assiduous in discovering and reporting research grants and contracts awarded to individual faculty, and including them in the university total.

Income from fees. Contrary to what one might have imagined on the basis of data covering only the past thirty years, fees income has not declined steadily in relative importance over the history of Canadian universities. Fees rose as a percentage of current revenues through the 'twenties, 'thirties, and 'forties. In the latter 'forties there was a sudden bulge in fees income (not captured in the table) as war veterans crowded into the universities. From the early 'fifties until 1966 fees income remained a stable proportion of revenues, at about one-fourth. By 1968 fees income was down to its 1921 level (of course, as a proportion of the total), and it has steadily declined since then.

Variation among regions and among universities. The figures reported in Tables II-1 and II-2 are averages for the entire country. Particularly in the pre-1960 period there was substantial variation among regions (as noted above in the paragraph on federal and provincial grants); presumably even wider differences obtained among individual institutions. These differences have tended to diminish over time, although they are far from being erased.

In 1978/79, for the first time, each of the universities reporting to the CAUBO gave it permission to release financial data by institution. This is valuable information, as it permits us to see how much variety there is among universities in the relative importance of different sources of income. Table II-3 depicts, by institution, the percentage of total operating income deriving from each of several sources. Cases of federations of universities, or groupings of associated universities, are treated in the same way as in our Profile of Post-Secondary Education in Canada, Table I-4. It should be noted that the "gifts, etc." column includes gifts, non-government grants, and investment income, but excludes that portion of income from these sources which are reported under the "sponsored research" category.

I considered including in Table II-3 a column showing total dollar income per full-time equivalent (FTE) student. This could be done using Statistics Canada enrolment data

TABLE II-3
SOURCES OF UNIVERSITY INCOME BY INSTITUTION (PERCENTAGES)
1978/79

university	provincial operating grants (1)	fees (2)	sponsored research (3)	gifts, etc. (4)	other (5)
Newfoundland					
Memorial	77.7	9.3	11.4	.8	.8
P.E.I.					
U.P.E.I.	82.3	16.1	--	.3	1.3
Nova Scotia					
Acadia	72.6	19.3	3.6	4.2	.3
Cape Breton	85.2	13.4	--	--	1.4
Dalhousie	62.1	8.8	12.9	8.6	7.6
Mount St.-Vincent	73.7	23.7	2.4	.2	--
St. F-Xavier	73.1	18.2	5.9	2.2	.6
St. Mary's	74.3	21.0	2.3	1.6	.8
Ste. Anne	83.3	14.4	--	--	2.3
New Brunswick					
Moncton	83.6	11.3	2.9	1.2	.9
Mt. Allison	66.1	15.3	2.9	15.2	.6
St. Thomas	74.5	25.5	--	--	--
Quebec					
Bishop's	69.0	13.0	1.3	3.7	13.2
Concordia	79.9	13.7	5.2	1.2	--
Laval	77.2	8.6	13.0	1.1	.1
McGill	63.7	10.1	17.9	8.2	.1

TABLE II-3 (continued)

university	provincial operating grants (1)	fees (2)	sponsored research (3)	gifts, etc. (4)	other (5)
Montreal	76.5	7.9	14.3	.7	.6
Quebec					
Chicoutimi	83.0	9.6	6.4	--	1.0
Montreal	84.8	10.2	4.9	--	.2
Rimouski	83.7	8.9	7.4	--	--
Tr. Riv.	77.8	10.5	8.6	.1	3.1
CEUOQ	87.9	9.2	--	1.0	1.9
Sherbrooke	75.1	7.1	15.8	.9	1.0
Ontario					
Brock	78.4	16.5	2.8	2.0	.5
Carleton	72.8	16.0	8.7	2.3	.3
Guelph	58.3	9.6	28.3	3.8	.1
Hearst	67.3	15.3	--	--	17.4
Lakehead	75.7	16.1	4.5	3.0	.7
Laurentian	76.0	15.1	4.4	3.8	.8
McMaster	59.3	10.4	21.7	4.3	4.3
Nipissing	74.4	14.1	--	10.3	1.2
Ottawa	71.7	11.5	10.0	3.9	3.2
Queen's	62.4	11.0	12.6	9.5	4.5
Ryerson	79.4	18.2	--	1.4	1.0
Toronto	61.9	12.7	16.5	8.4	.6
Trent	73.7	17.6	3.7	4.5	.5
Waterloo	70.0	14.0	10.4	2.3	3.3
Western	65.6	14.0	13.4	3.0	4.0
Wilf. Laurier	75.0	20.0	.9	4.0	.2
Windsor	76.9	15.2	5.5	2.0	.4
York	72.9	18.1	6.2	2.1	.8

TABLE II-3 (concluded)

university	provincial operating grants (1)	fees (2)	sponsored research (3)	gifts, etc. (4)	other (5)
Manitoba					
Brandon	57.1	8.1	.9	2.8	30.4
Manitoba	69.3	8.3	19.6	1.9	.9
Winnipeg	69.7	17.0	5.1	7.8	.4
Saskatchewan					
Regina	76.5	7.9	7.9	3.1	1.4
Saskatchewan	67.0	13.6	13.6	8.1	.9
Alberta					
Alberta	67.3	8.9	11.8	4.8	7.3
Calgary	74.0	11.2	10.1	4.0	.8
Lethbridge	81.7	9.4	3.1	5.7	.1
Br. Columbia					
Br. Columbia	63.6	8.4	13.2	5.1	9.7
Simon Fraser	81.6	8.6	6.2	1.8	1.8
Victoria	78.2	8.6	7.2	2.9	3.2

Source: AUCC: *Financial Statistics of Universities and Colleges 1978-1979*. "Prepared by Statistics Canada for the Canadian Association of University Business Officers" (CAUBO).

and a rule-of-thumb to convert part time enrolments into FTE's. However, if one did this it would probably generate greater misunderstanding than enlightment, since the particular circumstances of each university create widely differing cost experiences. Naturally those universities which have a relatively high proportion of students in expensive programs -- engineering, medicine, architecture, and graduate studies -- have generally higher incomes and expenditures per FTE student; universities which operate on the trimester system are not comparable with those which have retained the traditional academic year; and there is no satisfactory way of translating part-time and summer students into FTE's, at least on the basis of existing enrolment reports.

It nonetheless seemed illuminating to indicate the spread in university incomes per student, as is done in Table II-4. This table gives the reader further grounds for appreciating the diversity of situation among Canadian universities in financial matters, even though the data should be read bearing in mind all the caveats noted in the preceding paragraph.

2.2 FEES INCOME

In the fiscal year 1978/79, fees made up between 7 and 25 per cent of each university's operating revenues -- generally 8 to 11 per cent in the west and in Quebec, about 14 to 17 percent in Ontario, and a widely varying percentage in the Atlantic provinces. The percentage of operating costs borne by fees appeared not to correlate with university characteristics such as size or orientation to graduate studies. There does, however, appear to have been an inverse correlation between the overall size of a university's income per student and the percentage of its income derived from fees.

If a university draws a large proportion of its income from fees, is it thereby advantaged or disadvantaged relative to other universities? Probably, in the circumstances currently prevailing in Canada, it is worse oft. Since this judgment may occasion surprise, let us consider, and distinguish, the opposite case.

A university which has more qualified applicants than its facilities can accommodate, and which can finance a high proportion of its activities from the fees it charges, enjoys real autonomy. A marginal increase in its fees can

TABLE II-4

UNIVERSITY OPERATING INCOME AND PROVINCIAL OPERATING GRANTS PER F.T.E. STUDENT 1978/79

Rank	Operating Income $ (1)	Provincial Grant $ (2)	Rank (3)	Operating Income $ (4)	Provincial Grant $ (5)
1	9183	5842	27	6367	5426
2	9041	5617	28	6277	5520
3	9037	7062	29	6206	4097
4	8945	5210	30	6200	4607
5	8862	5642	31	6082	4732
6	8852	5733	32	6015	5033
7	8170	5659	33	5883	4526
8	8118	6627	34	5807	4411
9	8062	5402	35	5687	4717
10	7984	4711	36	5398	4576
11	7689	5773	37	5162	3756
12	7684	5934	38	5136	3743
13	7629	4722	39	5074	4054
14	7622	5133	40	5041	3949
15	7539	5769	41	4991	3494
16	7514	6135	42	4851	4056
17	7509	5553	43	4821	3965
18	7392	4222	44	4629	3410
19	7367	5636	45	4561	3331
20	7316	4568	46	4320	2737
21	7154	5954	47	4298	3221
22	7179	5612	48	3964	2946
23	7967	4803	49	3949	2867
24	6653	4769	50	3485	2430
25	6559	4305	51	3301	2433
26	6499	4918	52	3282	2606
			53	2877	2144

Source: AUCC: Financial Statistics of Universities and Colleges 1978-1979. "Prepared by Statistics Canada for the Canadian Association of University Business Offers" (CAUBO).

raise the university's operating income substantially, and thus its financial independence is assured. If raising fees excludes the non-rich, this disadvantage can be offset by using some of the additional fees revenues for scholarships.

Although a number of leading private universities in the United States are in the situation just described, these conditions do not obtain in Canada. Here, only four universities obtain more than 20 per cent of their operating income from fees, and the provincial grant is always three to eight times as great as fees income. Fee levels, which in 1976/77 ranged from about $425 to $740 in undergraduate arts, are too low to meet even the marginal costs entailed in admitting additional students without simply spreading existing resources thinner. No university can afford to expand an existing program, still less to develop a new one, counting on fees income to meet its costs.

In all provinces, fees are either directly controlled by the government or are the subject of an "understanding" between the government and the universities. In those cases where the universities do retain the nominal authority to set their own fees, de facto control in this matter may have been removed by a government decision to reduce the provincial grant by an amount equivalent to the augmentation in fees income. For the fiscal year 1980/81, Ontario will permit universities, at their discretion, to raise fees up to ten per cent standard levels. But in most provinces, marginal increases in fees, in order to compensate for declining revenues from other sources, are ruled out.

Indeed, it is doubtful that fees should be regarded as university income at all. The Ontario Council on University Affairs has noted that if the government sets tuition fees, "fees are [in effect] treated as if they were a form of Provincial Government revenue" (Ontario, OCUA, 1978a: 68). It is as if the province has taken responsibility for the provision of a service (higher education), and the determination of fee levels merely apportions the cost between the taxpayer and the student.

In short, the fact that Canadian universities derive some of their operating income from tuition fees does virtually nothing to shore up the traditional concept of the university as an independent and self-governing institution. Fee levels are too low to enable the universities to make their own decisions on academic programming; and -- except to a limited extent in Ontario -- external control of fee levels prevents them even from ameliorating their financial position by supplementing the income they obtain from other sources. The institutional advantages of financing-through-fees do not apply in Canada.

On the other hand, the disadvantages do apply. There are two of them.

--If fee levels are frozen by government decision, the universities have, in fees, a revenue item which is entirely inflexible. Suppose that fees supply 10 per cent of a given university's current revenue. Then, if non-fees income (mainly the government grant) rises by 10 per cent, the university's total operating income goes up by a lesser amount -- 9 per cent. Similarly, a university which gets 20 percent of its income from fees obtains only an 8 per cent increase in its current revenue. (On the other hand, if fees rise by a percentage greater than the percentage rise in the grant, a relative advantage accrues to those universities which draw a high proportion of their operating income from fees.)

--If enrolments drop, fees income drops correspondingly. Obviously, those universities which depend relatively heavily on fees income are affected more than others by a decline in student numbers.

In the result, fees income appears in Canadian university budgets as a destabilizing factor which increases the financial insecurity of those institutions which have relatively low levels of revenue per student. The situation is particularly acute in the case of those universities which face a prospective decline in enrolment. On the other hand, fee levels are just high enough to provide the universities with an incentive to increase enrolments in situations where a lax admissions policy would accomplish this result. If this happens, existing resources must be stretched to accommodate increased numbers, with a resulting decline in quality of instruction and a seriously negative impact on research. The situation differs if government grants too are proportional to student numbers -- but then it is the grants, not the fees income, that really matters.

2.3 FEDERAL ASSISTANCE

The history of the federal role in higher education since World War II is one of rising expenditures coupled with diminishing visibility and diminishing impact. This seeming paradox is easily explained. Since 1967 the federal money -- other than that earmarked for specific purposes such as research -- has been transferred to the provincial governments on the supposition that they will in turn pass it on to the universities and other post-secondary institutions. This has placed the provinces firmly in control. The 1977 amendments to the intergovernmental fiscal transfer arrangements accentuated the trend begun ten years earlier.

2.3.1 VETERANS' FEES SUPPLEMENTS, 1945-1951

Immediately after World War II the federal government initiated a system of indirect support to universities through a fee supplement scheme. It paid the universities $150 for each enrolled student who was supported by the Department of Veterans Affairs. At a time when university costs were approximately $400 or $450 per student this was a substantial payment. In the aggregate it contributed 16 per cent of university income in 1946/47 and a declining percentage in the immediately succeeding years as the number of war veterans at university declined (Massey et al., 1951: 141-2).

At the peak of the postwar bulge in enrolments, fees and the federal fee supplements for veterans made up more than half the "average" university's operating income. One infers that there must have been several universities which were very largely financed in this way. While this was, clearly, a passing phase in the history of Canadian universities, it stands out as a prototype of one form of university financing, elements of which have persisted to the present time. When government grants, federal or provincial, are closely related to enrolment, their impact on the universities is similar to that of a fee supplement scheme. It leaves the universities entirely in charge of their operations while augmenting the demand for their teaching services by reducing the tuition charges they must levy (if they have any choice in the matter) in order to remain solvent.

The fee supplement scheme, vital as it was for the universities, was necessarily a short-run policy for two reasons: the federal government had moral and political reasons for recognizing a special obligation to the war veterans and therefore for supporting their university education in a way which it might find less easily justifiable in the case of other students; and (secondly) the subsidence of the postwar enrolment bulge would cause the level of federal support for the universities to drop sharply after 1948 or 1949. A different technique would be required for longer-term assistance if such were the federal government's aim.

2.3.2 SUBSIDIES, 1951-1967

Payments under the fee supplement scheme were giving out when, in 1951, the federal government responded to the insistent pleas of the universities and instituted a general and "permanent" subsidy amounting in each province to 50 cents _per capita the provincial population_. By implication, the _per student_ payment would vary among the provinces, depending on the ratio of university students to the total provincial population. Within each province the sum available was distributed to those institutions which belonged to the National Conference of Canadian Universities in proportion to their enrolments. The scale of support per capita was doubled in 1957 and then increased to $1.50 (after a change in government) during the following year.

In the period 1954 to 1964 the federal grants contributed between 14 and 23 per cent of university income -- always smaller, be it noted, than the provincial grants which were on the scale of 35 to 41 per cent of annual income at this time (Bladen, 1965: 30: one infers that these data exclude sponsored research income, cf. our Tables II-1 and II-2).

The federal program of direct support to the universities was not unlike a fee supplement scheme, though there were two important differences. One was that the size of the "supplement" (if one looks at it this way) varied by province; universities located in a province with a relatively high university student population were, so to speak, shortchanged. A second difference was that the size of the subsidy per student declined as participation rates rose: the base figure was the provincial population, not the number of university students in the province. It would have been difficult politically to have obviated these disadvantages by reverting to the postwar fee supplement scheme. Naturally, if such an idea had been entertained it would have been necessary to make all students eligible, and not just war veterans. Even with this modification, however, a fee supplement scheme would arguably have been inequitable because educational structures differed among the provinces; Quebec especially would have been discriminated against because of the role played by its classical colleges. Indeed, the 1951 policy was not acceptable to Quebec either.

When the first direct federal subsidies to universities were introduced (1951), the Prime Minister took pains to deny any federal intrusion into provincial affairs. "In making these recommendations to parliament," said Mr. St. Laurent, "it is intended to avoid any possible suggestion that we are interfering in any way with the policies respecting education in the respective provinces" (Bladen, 1965: 7). The disclaimer did not, however, satisfy Quebec's Premier Duplessis, who instructed the universities of that province not to accept the federal money. Nor was the province pacified when, in 1957, the federal government appointed the Canadian Universities Foundation as its agent in the distribution of the money.

The situation was not resolved until 1960 when, in the interregnum between the death of Premier Duplessis and the election of the Lesage government, a special tax-transfer arrangement was negotiated between Quebec and Ottawa. According to this arrangement, the federal government would no longer offer grants to the Quebec universities, but it would lower its tax rates on corporate incomes in the province by one per cent in order to permit the Quebec government to raise its corporation taxes correspondingly and to spend the proceeds on higher education. It was agreed that an inter-governmental transfer of funds (whether from Ottawa to Quebec or vice-versa) would be made, such that the exact sum otherwise receivable by Quebec universities would now flow into the province's treasury. What made this more than a purely symbolic victory for Quebec was the fact that the province thereby gained unique control over the distribution of funds among universities, and among various institutions of post-secondary education including the classical colleges. In my opinion, the 1960 agreement was basic to giving the province full power to redesign the structure of its educational institutions during the 'sixties, and to establish ultimate financial control over the universities.

This opinion cannot be tested by comparing the situation in Quebec with that which has obtained in other provinces. The other provinces do not constitute, in this respect, a control group because the principles of the 1960 deal with Quebec were incorporated into the more general arrangements declared by the federal government in 1966 for implementation the following year.

2.3.3 GRANTS TO PROVINCIAL GOVERNMENTS, 1968-1977

To the dismay of Canadian universities, Ottawa withdrew its program of direct grants in 1967. Instead of subsidizing universities directly, the federal government started in 1967/68 to make payments to provincial governments. The size of the intergovernmental transfer was based on the operating costs of post-secondary institutions in the province.

The announcement of the new federal policy had the appearance of generosity, and actually was rather more generous than anticipated. Ottawa made the grand gesture of offering to pay half the operating expenditures of post-secondary institutions. The offer was to be made good mainly by federal tax reductions: the one per cent tax on corporation incomes as already transferred to Quebec, and sufficient reductions of personal income tax rates to decrease federal revenues from this source by four per cent. As in the 1960 deal with Quebec, the provinces were expected to fill the space vacated by Ottawa by raising their taxes by like amounts. On top of this, if necessary, the federal government would make an adjustment payment to the provincial treasury to bring the total up to the promised 50 per cent figure. An alternative formula was also offered, based on a fixed per capita sum (initially $15) rather than on the expenditures of post-secondary institutions. The alternative formula was advantageous to Newfoundland, New Brunswick, and Prince Edward Island; and at no time was the grant to these provinces in any way related to university costs or to provincial education policy.

Although this was an open-ended program, in the sense that the size of the federal commitment was to depend on a formula and therefore could not be reliably estimated in advance, it is probable that the federal officials thought that Ottawa could meet its obligations on the cheap. It was reasonable to suppose, when the commitment was made, that the "tax points" would cover most of the claims advanced by the provinces because during the latter 'sixties, yields from the personal income tax increased at about twice the rate of growth of the GNP (a consequence of progressive tax schedules). With any luck, federal officials seem to have calculated, university expenditures would rise at less than twice the growth rate of GNP. Soon the federal government would be "riding free" on its commitments regarding post-secondary education, meanwhile having responded to provincial demands for a larger proportion of shared tax fields. It could also continue to claim that it was carrying half or more the cost of post-secondary education.

Between the making of the offer and the drafting of the Act to implement it, the federal government got some inkling that its suppositions about the chargeable costs of post-secondary education were unduly modest. At the conclusion of the intergovermental negotiations, Ottawa had agreed to base its payments to the provinces on a sum which included all the operating costs of institutions admitting only students with junior matriculation as defined by the province, plus an appropriate portion of the operating costs of institutions which offered mainly secondary schooling, but some instruction beyond this level. In the end, Ottawa was liable for half the operating costs of non-university institutions as well as universities, the former including Ontario's CAATs and Quebec's CEGEPs, then just being created on a large scale. Even the last year of high school in several provinces was included. With such a definition of the federal commitment, and with the rapid growth in the relevant age group and the marked expansion of graduate studies in the universities, growth rates in expenditure under this program rose more than twenty per cent annually during the first five years of its operation. It even happened that the adjustment payment, in the years 1970/71 and 1971/72, outstripped the value of the tax points.

If the niceties of a complex formula and the history of bureaucratic miscalculation are confusing and apparently aimless, let me hasten to say what general point can be made, and needs to be made, on the basis of this rather esoteric detail. The federal government would not admit to shucking off all financial responsibility for the universities, or for post-secondary education in general; but it apparently wanted to permit diversity among provinces in the design and finance of educational institutions. It ended up with a formula which made no reference at all to the kind of institution which would be eligible for assistance -- or, more properly, whose operations would generate a federal obligation to provincial treasuries -- even to the point of avoiding any specification of the distinction between secondary and post-secondary institutions. By relating the federal commitment to institutional budgets rather than to provincial government expenditure, the new formula was neutral as between a province whose universities and colleges charged high tuition and other provinces in which fees covered a lower proportion of costs. (Thus the new arrangement was not strictly speaking a shared-cost program, and the annual adjustment payment was simultaneously described in federal accounts as an unconditional grant to the provinces and an expenditure on education.)

In conclusion, in 1967 the federal government left the provinces in full control of the universities and all other educational institutions while assuming indeterminately large financial obligations to the provincial governments. The inability to control its spending under the program and its inability to direct its spending in such a way as to serve some desired purpose were inevitable consequences of its wish to respect the constitutional prerogatives of the provinces in education.

It is a matter of judgment whether one accepts the federal claim that it footed half or more of the bill for post-secondary education in the fiscal years 1968 to 1977. The claim is based on the assumption that the value of the tax points ceded by Ottawa in 1967 remained, morally speaking, federal revenue even though the taxes concerned were levied by the provinces.

This argument had at least formal validity until 1972. By the 1967 Fiscal Arrangements Act, taxpayers who were residents of a province (i.e., all taxpayers save non-residents of Canada, and residents of the Yukon and the North West Territories) were permitted to "abate" or reduce their federal taxes by 4 per cent; simultaneously the federal government reduced its corporation taxes by 1 per cent. As a consequence, the provincial governments could raise their taxes by like amounts without imposing a heavier burden than heretofore upon their taxpayers (whether individual or corporate), and the revenues could be applied to post-secondary education. The "abatement" could be (and was) claimed by Ottawa to be a federal contribution to universities and colleges.

The argument became increasingly tenuous in 1972, however, when the abatement scheme was abandoned. Henceforth only avid statute-readers with an actuarial cast of mind as well as a retentive memory would be likely to think of the fact that a portion of their provincial taxes constituted a "federal revenue reduction in aid of higher education". It is therefore reasonable to ask whether the tax points should not be regarded as having become general provincial revenue, and whether the federal contribution to post-secondary education did not consist in the adjustment payment alone.

If one takes this view of the 1967-1977 arrangements, the federal government could be said to have financed only a relatively modest proportion of university and other post-secondary operating costs. The percentages, calculated on the basis of the adjustment payment alone, are set out in Table II-5. The table shows not only a percentage contribution from Ottawa which never exceeded 27 per cent, but wide variation among provinces and, since 1972, a sizeable overall decline. To explain these facts, we shall have to look more carefully at the formula for calculating the adjustment payment.

The 1967 formula was modified in 1972 when the initial five-year agreement expired. The only substantive change was that the federal government placed a "cap" on its contribution under the program such that the total sum (tax points plus adjustment payment) could rise no more than 15 per cent in any one year over the country as a whole. Thus, if some provinces experienced a rise of less than 15 per cent in the cost of running their post-secondary institutions, other provinces could exceed the 15 per cent "cap" with impunity. Since expenditures rose much more modestly in the 1970's than in the previous few years, the limitation had little impact, although it did seriously penalize British Columbia for a year or two. The main import of the "cap" was to underscore the provinces' vulnerability to policy changes unilaterally made by Ottawa.

The other changes made in 1972 were consequent upon the general tax reform package which was introduced at that time. They were coupled with modifications to the general scheme of federal fiscal transfers to the provinces. Thus, after 1972 the adjustment payment was determined (except in the case of Newfoundland, Prince Edward Island, and New Brunswick) by:

--calculating, subject to the "cap" already described, half the operating costs of post-secondary institutions in the province (including for this purpose the estimated costs of post-secondary programs offered by secondary institutions), and

TABLE II-5

FEDERAL CASH TRANSFERS TO PROVINCIAL GOVERNMENTS FOR POST-SECONDARY EDUCATION: PERCENTAGE OF INSTITUTIONAL OPERATING EXPENDITURES, FISCAL YEARS 1968 TO 1977

Province	1968 (1)	1969 (2)	1970 (3)	1971 (4)	1972 (5)
Nfld.	26	30	25	30	30
P.E.I.	50	34	22	28	25
N.S.	24	25	29	32	31
N.B.	15	19	21	26	23
Que.	28	28	29	34	33
Ont.	17	21	22	24	24
Man.	22	24	23	27	26
Sask.	30	25	27	25	25
Alta.	31	32	32	34	34
B.C.	13	14	13	17	18
Canada	22	24	25	28	28

Province	1973 (6)	1974 (7)	1975 (8)	1976 (9)	1977 (10)
Nfld.	22	18	14	11	12
P.E.I.	22	21	16	11	17
N.S.	31	24	22	19	18
N.B.	20	19	15	11	14
Que.	27	27	27	20	28
Ont.	22	19	16	15	15
Man.	24	21	17	16	15
Sask.	24	21	17	19	13
Alta.	31	28	25	18	14
B.C.	14	9	8	1	4
Canada	24	20	20	16	18

Source: Calculated from annual reports of the Secretary of State for Canada.

--subtracting a sum equivalent to the total of:

- : 4.357 per cent of federal personal income tax revenues derived from the province, plus
- : 1 per cent of taxable corporate income in the province, plus
- : associated equalization and revenue guarantee payments, as defined in the 1972 Fiscal Arrangements Act.

This formula produced whimsical results and we can hardly be surprised that the whole scheme was abandoned in 1977. It will be observed that the size of the annual adjustment payment varied directly with the cost of post-secondary education in the province (as always, with the exception of Newfoundland, Prince Edward Island, and New Brunswick), and inversely with the value of the tax points. A province which obtained a relatively high yield from its personal and corporation income taxes received a correspondingly diminished cash payment from Ottawa. Moreover, since the tax yields fluctuated somewhat from year to year, so did the cash payment. The interplay of these factors yielded a per capita adjustment payment which is reported in Table II-6. The results were really quite capricious.

Another consequence of having this particular formula for calculating the adjustment payment was that the federal cash contribution for post-secondary education could be expected to decline in the early 1980's, and to disappear altogether about the middle of the decade. This would be (from the federal budget-maker's perspective) the "riding free" phenomenon. But for those federal officials and politicians who believed that there was, and is, a federal interest in post-secondary education which transcends the sum of provincial interests, riding free would mean the evaporation of all federal claims in the field, unless these could be totally divorced from financial considerations. The day when federal cash payments would be wiped out, would approach all the more speedily as tax yields rose and post-secondary enrolments dwindled, inducing a correspondingly modest rate of growth in post-secondary operating costs.

TABLE II-6

FEDERAL CASH TRANSFERS TO PROVINCIAL GOVERNMENTS FOR POST-SECONDARY EDUCATION: PER CAPITA PAYMENTS, FISCAL YEARS 1968 TO 1977

Province	1968 (1)	1969 (2)	1970 (3)	1971 (4)	1972 (5)
Nfld.	4	6	8	11	13
P.E.I.	10	6	9	12	13
N.S.	10	13	18	22	24
N.B.	4	6	8	12	13
Que.	11	13	16	22	28
Ont.	7	11	14	19	21
Man.	8	11	13	18	20
Sask.	13	11	14	17	17
Alta.	16	19	25	33	37
B.C.	5	6	6	9	10
Canada	9	11	14	19	22

Province	1973 (6)	1974 (7)	1975 (8)	1976 (9)	1977 (10)
Nfld.	12	11	9	9	12
P.E.I.	13	12	10	9	13
N.S.	26	23	24	23	26
N.B.	13	12	10	9	13
Que.	27	29	35	34	54
Ont.	21	20	18	20	23
Man.	19	18	16	18	19
Sask.	18	18	15	13	16
Alta.	32	31	30	24	21
B.C.	9	6	7	1	5
Canada	22	21	22	21	28

Source: Calculated from annual reports of Secretary of State for Canada.

2.3.4 ESTABLISHED PROGRAMS FINANCING, 1977-

An important policy change introduced in April 1977 substantially increased the federal cash transfers to the provinces intended for the support of higher education, but simultaneously reduced the visibility of the federal presence in "established programs" -- hospital insurance, medicare, and post-secondary education. Most provinces assert that Ottawa has vacated these fields entirely. There remains, however, some ambiguity about the federal role in all three fields because of certain features of the "established programs financing" scheme.

Since the inception of the scheme in 1977 the federal government has no longer tied its expenditures in post-secondary education, or in hospital insurance and medicare, to program or to institutional costs. "Established programs financing" involves a transfer of tax points (in the same way as the tax points were conceded in the 1960 agreement with Quebec, and in the 1967 Fiscal Arrangements Act), plus an annual cash payment. The scheme was designed so that, in a hypothetical "base year" (fiscal 1976), half the federal contribution would have been in cash, and half in tax points.

The size of the total federal transfer to the provinces in the first year of the new arrangements was based on federal contributions to the three programs (including, in the case of post-secondary education, the value of the tax points) in the base year: $4676 million. This was split into two equal parts of $2338 million.

--Tax points: Federal income taxes were reduced such that the 1976 yield would have shrunk by 8.143 per cent (which, together with the 4.357 per cent already transferred to the provinces for post-secondary education, made up the more widely advertised figure of 13.5 per cent). Taxpayers filling out their 1977 returns found their marginal rates reduced by something like two or four per cent, depending on their income levels; and the provincial rates rose correspondingly. The federal tax yields which would have been foregone from the 13.5 per cent of personal income tax, and from a 1 per cent tax on corporate incomes (already transferred, in 1967), amounted to $2338 in fiscal 1976, although the revenue obtained by the provinces from these tax points will increase annually as incomes rise.

--Cash transfers. The other $2338 million is the base figure for calculating an annual cash grant to the provinces, a grant which will increase annually in line with the growth of the GNP. To this is added a supplementary "transitional payment" which in effect guarantees the provinces that they will not be treated less favourably than they would have been if the whole of the transfer had been in cash (escalated by the rate of growth of in GNP). In other words, if income tax yields grow less rapidly than GNP — which in an inflationary period they may do because of indexation -- then the federal government augments the cash payment. This appears actually to have occurred, and the "transitional payments" are nowhere near phasing themselves out. The cash transfers are correspondingly larger than anticipated.

The distribution of the cash grant among the provinces initially matched the distribution of federal monies under the medicare, hospital insurance, and post-secondary education programs; but after a five year levelling-off period the cash will be distributed among the provinces on an equal per capita basis. This is a big difference from the earlier scheme (compare Tables II-6 and II-7).

A key feature of the scheme is that the annual cash payment is notionally divided into three parts, in proportion to federal outlays (including tax points) under the three programs in 1976. The post-secondary payment is approximately 32 per cent of the total. In consequence, there will remain in federal accounts a payment nominally made for post-secondary education, and others nominally directed towards medicare and hospital insurance, even though the sums are not determined in any way by the cost of services provided under these heads. Data on these cash transfers are presented in Table II-7.

The point of the new arrangement is to retain some leverage over provincial policies in each of the three areas, although in the case of post-secondary education no conditions are attached to the cash payment. This contrasts with the situation in the two health care programs, where payments are supposedly conditional upon the provinces' meeting specified program standards. It is because the payments are, in law, conditional that Health Minister Monique Begin could threaten to withold them; and the same fact provides the rationale for the Clark government's

TABLE II-7

FEDERAL CASH TRANSFERS TO PROVINCIAL GOVERNMENTS FOR POST-SECONDARY EDUCATION UNDER "ESTABLISHED PROGRAMS FINANCING", 1977/78 to 1980/81

Province	Cash transfers in $ million				average annual growth rate	$ per capita in 1979/80[a]
	1977/78	1978/79	1979/80	1980/81		
	(1)	(2)	(3)	(4)	(5)	(6)
Nfld.	27.2	34.2	41.3	45.2	18.8	71
P.E.I.	5.5	7.1	8.8	9.7	21.5	71
N.S.	42.4	51.8	60.9	66.6	16.3	71
N.B.	33.3	41.9	50.4	55.3	18.6	71
Quebec	256.4	291.0	320.0	342.1	10.1	51[b]
Ontario	416.6	499.6	572.5	625.3	14.6	67
Manitoba	53.7	64.3	74.2	80.5	14.6	72
Sask.	47.2	58.1	68.9	75.5	17.1	71
Alberta	83.3	103.3	122.6	138.6	18.6	59
B.C.	106.2	136.6	165.3	182.2	20.0	63
All Provinces	1,071.7	1,288.0	1,484.9	1,621.0	14.9	62

Notes: (a) Based on population at January 1, 1980.

(b) This is a misleadingly low figure because Quebec receives a larger percentage of the total fiscal transfer in tax points and a correspondingly smaller percentage in cash.

Sources: (1) Data on cash transfers supplied by Secretary of State's department.

(2) Population data: Statistics Canada: Quarterly Estimates of Population for Canada and the Provinces (Cat. 91-005), April 1980.

decision to hold an enquiry into the provinces' administration of the medicare program.

The established programs financing scheme, including its post-secondary element, is clearly of importance to the provincial treasuries; but does it make any difference to the universities and other post-secondary institutions? It would appear not -- at least not at present. The tax points are clearly provincial property now, and the cash transfers are generally regarded as unconditional even in the two health care programs; in post-secondary education the federal government has no legal authority to impose conditions. This means that although the provinces are financially supported by the federal government with a cash transfer which is labelled as being for post-secondary education, for all practical purposes these funds merely help to swell provincial general revenues. The provinces can spend the money on education or on anything else; and the universities are dependent upon the extent to which the provincial treasurers are willing to dip into their general revenues for the support of higher education.

Nonetheless, the federal government continues to express a concern for the fulfillment of unstated national purposes in post-secondary education. The Secretary of State is charged by statute with the responsibility to consult with the provincial governments "with regard to the relationship between the programs and activities of the Goverment of Canada and of the governments of the provinces that relate to post-secondary education". What force such discussions may have, however, is difficult to imagine, unless the federal government should negotiate with the provinces regarding amendments to the established programs financing scheme, for which it is morally, and perhaps also in law, bound to give three years' notice. (This matter is discussed in Section 4.4, below.) Otherwise, its intervention is limited to moral suasion on the basis of its ever-growing cash transfers to the provincial governments in aid of post-secondary education.

2.4 SPONSORED RESEARCH INCOME

We cannot overestimate the importance of sponsored research funds for the development of Canadian universities. This may seem odd, for two reasons. One is that it is not strictly accurate to regard research grants and contracts awarded to individual faculty members as university income. This matter has already been commented upon.

A second reason is that, even if we adopt an accounting fiction which regards research monies as university income, we find that even research-intensive universities rarely receive only more than 15 per cent of their income in the form of research funds (6 cases in 1978/79). Universities without heavy programs in the natural sciences, in medicine and related fields, and/or in special fields such as agriculture, cannot expect to attain anything like 15 per cent. Indeed, some institutions of considerable prestige, with several professional schools and a wide range of graduate programs, receive (again, under our accounting fiction) about 10 or 12 per cent of their income in the form of research funds; and of course many universities receive negligible amounts, or none at all, from this source. The average, as noted in Table II-2, worked out to about 12 per cent in 1978/79. For a quick comparison, we may note that research-oriented universities in the United States derive, or in the halcyon 'sixties used to derive, half or more of their operating funds from research grants and contracts (Ben-David, 1972: 107).

We may conclude that, relative to the general provincial operating grant, sponsored research income is small potatoes. But it has an impact on the overall character of universities, and the structure of the university sector, out of all proportion to its contribution to university finances. However much one may emphasize the importance of inter-university cooperation, and encourage the selection of university objectives in accordance with provincial plans (where they exist), universities do remain in competition with each other, some of them striving for pre-eminence in certain fields of specialization, others aiming to catch up with or outpace today's front-runners. The visible signs of success in this sort of competition, and the tangible side of "university prestige", is the development of research programs and graduate studies. These two are closely linked, and the success of individual faculty in competing for available research funds is of critical importance in the development of both.

2.4.1 SPONSORED RESEARCH INCOME AND UNIVERSITY EXPENDITURES ON RESEARCH

Sponsored research income bears no relationship to the financial resources which universities expend on research. Indeed, it is doubtful that the concept "university research costs" even makes sense. In this section I argue that it does so only under radical (and for most purposes unacceptable) accounting conventions. Still, we have to face the fact that many people are tempted to ask whether research-intensive universities pay a price for their research orientation (in the sense that they have to subsidize their research effort from other sources of university income), or whether on the contrary those universities whose faculty are successful in the competition for research funds can indirectly draw on them to finance a portion of instructional and other costs.

The attempt to cost out university research activities, and to do the same for teaching and public service activities, is not unusual. Analysts, have expended a great deal of energy upon it. In the attempt, however, they have inevitably, though often with much protestation that the task requires skillful judgment, been induced to regard teaching and research activities as discrete and separable; and then the attempt necessarily fails. The figures produced, even by careful and painstaking work, are quite literally meaningless. Since proposals are regularly made to separate the funding of teaching and research (see Section 3.5, below) it is important to explain why it is futile to attempt to cost and to fund these functions separately.

There is a perennial debate on the relationship between teaching and research: whether at the university level only those engaged in pathbreaking work in their disciplines can be good teachers, or whether (on the contrary) university staff habitually bury themselves in esoteric subjects and neglect their students in order to expand their list of publications. These are the extreme positions in the debate; but even their proponents easily agree that at any level of university teaching, instructors must undertake research in order to prepare their courses. "Research" in this context means evaluating new contributions to the literature in one's field and constantly reassessing, in the light of the latest work in the discipline, what needs to be covered in individual courses and in degree programs. This activity contributes to the researcher's (or teacher's) knowledge without contributing to knowledge as such, i.e. to the furtherance of one's discipline or to the creation of any new discipline.

The latter sort of knowledge is necessarily made available to other researchers through publication. That some research is conducted with a view to the immediate publication of "findings", while some has a more indirect and/or long-term payoff, is one of the considerations which led L.-P. Bonneau and J.A. Corry (1972) to distinguish between research as "reflective inquiry" and, on the other hand, "frontier research". Frontier research, as they define it, emphasizes but is not limited to empirical investigation; it consists in the attempt "to gain new ground for the map of knowledge", and comprises both "the digging up of new facts and the intellectual winnowing of hypotheses" (v. I: 30, 31). On the other hand, write Bonneau and Corry:

> When we turn from the digging up, the verifying and the assembling of what we know, to consider the larger meaning of what we know, and to consider what is worth looking for and what is most worth looking at, we have moved into an almost entirely intellectual activity. We are no longer putting Nature on the rack to be interrogated: we are conducting an inquiry into thought, examining the principles and theories by which the sum of our knowledge, whether in a narrow sector, a wide sector, or over the whole range, has been given coherence and meaning; we are looking perhaps for a new projection for the map of knowledge. We are working, not with the seeing eye or with the mind narrowly focussed on minute analysis, but rather with the synthesizing mind, more concerned with breadth of view than with depth of specialization and minute analysis.... This kind of activity, vital for fruitful research, and often the most fruitful outcome of research, has special characteristics distinguishing it from heavily empirical and analytical work. We call it "reflective inquiry." ...

They continue (at p. 33):

> [The] distinction ... between frontier research and reflective inquiry ... helps to distinguish the components of academic activity which are vitally related to teaching, particularly undergraduate teaching, and those that are not. Reflective inquiry is vital for all good teaching at all levels because the breadth of its sweep enlarges the vision and stimulates the mind. On the other hand, erudite scholarship deployed in the classroom and focused on minutiae often has a stupefying effect. Somewhat similarly, a great deal of highly specialised frontier research in many, although not all disciplines, is not in itself a vital direct service to teaching at all levels.

And on the relationship between the two (pp. 32, 33).

> Reflective enquiry...is vital to the whole enterprise of research. Frontier research, without the guiding and suggestive light of reflective enquiry, is in danger of getting into blind alleys. On the other hand, reflective inquiry which fails to keep in close touch with the findings of frontier research tends to become insensitive to the world and life, and to speculate in a vacuum.
>
> . . . .
>
> A science that is advancing involves both. The distinction between analysis and synthesis as mental operations is clear, but both are used in advancing knowledge.

It is an implication of Bonneau and Corry's comments that to attribute staff time or effort dichotomously to research and nonresearch activity is not possible. Reflective inquiry is not only essential to good teaching, it informs and guides research at the frontiers of knowledge. It is, then, vital to achieving excellence in both the major functions of the university, even when it is not in itself an "output", or "product". On the other hand, it is not merely private understanding (as distinct from publicly accessible knowledge): some of the landmarks in the history of science are in the nature of reflective inquiry, as in the cases of Einstein's theory of relativity, or Keynes' General Theory of Employment, Interest, and Money. An outstanding work of reflective inquiry may well take twenty years to mature in the mind of the scholar.

It is thus understandable that Bonneau and Corry should have regretted the tendency, a fairly common one, to disregard reflective inquiry as a research activity. A usage in which "research" is meant only as "frontier research" does indeed appear to underlie efforts to estimate the costs of university research as distinct from the costs of instruction and of public service. The very attempt, however, does violence to the idea of the university.

The attempt to cost out university research also faces another, more technical, problem. In some graduate programs, instruction and the conduct of research are one and the same activity, since many programs involve a form of apprenticeship as the primary means of developing the individual's research capacity. This is especially true of the natural and health sciences and of engineering, but it is much less true of the social sciences and is rarely if ever the case in the humanities. In the latter areas, the research-training component of graduate degree programs requires the supervisor's assistance in the form of criticism and advice; it rarely involves the joint conduct of a single research project by supervisor and student.

There are, in short, serious obstacles to estimating university costs by function. I know of two instances, however, in which the conceptual and practical difficulties of distinguishing teaching and research functions have been acknowledged, and the costs of research have been calculated in such a way as to take account of these difficulties. The two studies employ radical (and opposite) assumptions or definitions. A comparison of them is correspondingly instructive for those who would engage in, or lend any credence to, attempts to estimate the allocation of university resources between teaching, research, and public service.

The first of these studies is by John B. Macdonald and six others, all of them prominent as scholars and/or university administrators. It is entitled The Role of the Federal Government in Support of Research in Canadian Universities, and is frequently alluded to as "the Macdonald Report". The authors of this study acknowledge that they have "...ignored the considerable support which the research and graduate programs provide for undergraduate teaching," (Macdonald et. al., 1969: 37) but on the other hand they assert (at page 34):

> University research is inextricably interwoven with the work of graduate students being supervised toward the completion of their masters or doctorate [sic] studies. In the allocation of staff salaries there is one item of the mixture that can clearly be separated -- the item of graduate instruction which pertains to the formal university lecture courses given at the graduate level.... However, the supervision of the research work of graduate students is, perhaps, a more important part of the whole graduate training program and it cannot be easily separated from research carried out by the staff members themselves (research for its own sake or research in support of other programs such as that of undergraduate instruction).

In consequence, Macdonald and his associates assessed

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the proportion of staff salaries to be assigned to research such as to include "all the costs of graduate supervision and research", (p. 35) while excluding classroom instruction for graduate students. On this basis, 29 per cent of staff salaries were treated as costs of research. In addition they included "a rather arbitrary fraction of 70 per cent" of library acquisitions (p. 33), two thirds of the costs of maintaining computing facilities, various other direct costs including scholarships for graduate students, plus an additional 35 per cent of direct costs as an estimate of indirect costs (e.g. of administration, physical plant, library services, and so forth). They concluded (p. 37) that research costs amounted to 55 per cent of total ordinary university expenditures in 1966-67, adding:

> The total research expenditures of Canadian universities as we have assessed them may appear to be surprisingly large. They cast some doubt on the traditional picture of the universities according to which the dominant programs are undergraduate education and the training of the professional schools. Perhaps our view here has been too sweeping. We have included under "research" the whole gamut of postgraduate activity -- from aid to graduate students to the research-for-its-own-sake carried out by faculty members.

The point that deserves emphasis, however, is that a rigorous application of the assumptions made in the Macdonald Report would produce an even larger estimate of research costs. Where, as in the supervision of graduate students, the authors found it impossible to disentangle the costs of teaching and research, they took research effort as fundamental to the business of the university and treated the instruction imparted through thesis supervision, the authors of the Macdonald Report would have made an even higher estimate of research costs. It would have been perfectly logical to do this -- indeed, perhaps more logical than making the compromises which put research costs as low as 55 per cent of university operating budgets.

The other study which deserves comment here is unpublished, and consists of data supplied to the author at his request by the University of Manitoba. (I should like here to record my thanks to the University of Manitoba for its assistance.) The University calculated program costs (1974/75) for 19 undergraduate and first-professional-degree programs, and for graduate programs (which for this purpose are lumped together), on two bases: one which includes associated research and public service costs, and one which excludes such costs. "Research" is defined in the study to include "Research, Scholarship, and Creative Activities such as basic research, writing books, etc. and other scholarly activities not related directly to Public Services, *or necessary for maintaining a satisfactory level of teaching*" (my emphasis). Estimates of staff time spent on research not essential to good teaching were made by department chairmen and deans, rather than by asking individual members of staff to report the time they spent on various activities. (Though the decision to proceed in this way may be criticized, it ensures more consistent observation of the instructions on data-reporting forms, and in my opinion is probably more reliable than individual questionnaires would have been.)

The Manitoba study, then, inverts the assumptions made by the Macdonald Report when dealing with the problem of joint supply (i.e., when the same activity gives rise to two "outputs", teaching and research). Macdonald and his associates, whose mandate was to examine research costs and funding, understandably gave privileged consideration to research; when faced with a joint supply problem, they calculated the costs of doing the research, and treated other university expenditures as a residual. In the Manitoba study, the training of students was the main focus of attention. In this study the investigators asked themselves (as it were): if the university teaches the present number of students, observing standards now attained, what are the costs of doing so by program? If there are research and public service activities unrelated to teaching, which hypothetically might be abandoned without affecting the university's mandate for the education of its students, how much would that "extra" research and public service cost?

The answers ranged from an "extra" 28 per cent (agriculture) down to an extra 5 per cent (dentistry), with general arts at 22 per cent, graduate programs at 19 per cent, and engineering at 10 per cent. Aggregation of research costs alone (i.e., disregarding public service activities which are included in the figures just quoted,) across all faculties and schools, yielded a figure of less than three per cent of the university current budget.

An intuitive response to the findings of these two studies may be that to estimate research costs at 55 per cent of operating expenditures is "too high" and that 3 per cent or less is "too low". A better response would be to recognize that both figures are probably in the ballpark, but that what was asked for in the two instances was quite different. To demand an in-between estimate is to require an arbitrary attribution of staff time and other university resources to research and to instruction as if they were discrete activities. There are indeed studies which do just that, but they require the reader to disregard the essential character of the university and to connive at the pretense that the indivisible can be split into its component parts. Any attempt comprehensively to separate research costs from instructional costs must produce results which mean nothing at all: estimates of research costs at 20 per cent, at 30 per cent, or at 40 per cent of operating expenditures would all be equally valid. The attempt itself rests on a mistake.

(Since these lines were written, the Canadian Association of University Business Officers, or CAUBO, has published a Report of the Pilot Study on the Costs of University Research, prepared at the request of the Canadian Committee on Financing University Research [CAUBO, 1979]. This is a study which has produced some extremely valuable results in distinguishing, in six institutions, indirect from direct costs. The study also shows how indirect costs may vary from one function to another. The part of the study dealing with direct: indirect cost ratios does not depend upon faculty activity analyses, all of which necessarily require one to treat research and teaching as discrete activities. As I have said, I disagree with the attempt to do this on a comprehensive basis, and therefore think the pilot study is arbitrary where it concludes (p. 50) that research accounts for between 32 and 38 per cent of institutional operating expenditures, depending of the case. On the other hand, I readily concede that some research is not significantly related to teaching. Such a project, or indeed any project, may be costed within an acceptable margin of error. For any attempt to do this, in the case of a particular research project, I regard the pilot study as invaluable. But to do a "full cost" estimate of any project means simply that any instructional or training benefit is treated as a by-product or bonus.)

I hope to have discouraged the reader from engaging in a rather tempting exercise, namely to compare sponsored research income with expenditure on research. It would be satisfying to do this, because we would then know whether universities which engage heavily in research (read: "frontier research") thereby incur a financial penalty.

Macdonald et al. (1969) argued this case. They declared (p. 137) that "...the availability of federal research funds restricted to direct-cost coverage impoverishes universities through a budgetary substitution effect similar to that which can be induced by [federal] conditional grants [to the provincial governments]."

The opposite position, however, is equally plausible: that universities whose staff obtain external research support thereby acquire resources which will be used in part for purposes of graduate and undergraduate instruction. If this case is stronger than the one argued in the Macdonald Report, a research-oriented university could probably place itself at an advantage relative to those universities which did not have such a high profile in research.

We cannot resolve this issue. To do so would require the separate costing of teaching and research. I have argued that, on a comprehensive basis, that is impossible. What can be done, however, is to enquire into the impact of sponsored research income on excellence in both teaching and research. We cannot usefully ask whether research pays for itself, but we ought to be asking what the availability of external research funds enables a university to do, or to do better.

2.4.2 SOURCES AND DISTRIBUTION OF SPONSORED RESEARCH FUNDS

In 1978/79 the universities reported an income of $357 million which was earmarked for research. This represented 12.3 per cent of university operating income excluding ancillary services (see Table II-2, above). Slightly more than half these funds came from the federal government, mainly through the three granting councils: the Natural Sciences and Engineering Research Council (NSERC), the Medical Research Council (MRC), and the Social Sciences and Humanities Research Council (SSHRC). Lesser amounts came from provincial governments, from industry, from charitable foundations and other granting agencies (some of them non-Canadian), and from the universities' investment income. For the data, see Table II-8.

Several questions arise concerning the significance of the data on sponsored research income. Are the figures accurate? What is the pattern of distribution of research support among the universities? What are the policies, mechanisms, and procedures which govern the award of re-

TABLE II-8

SOURCES OF SPONSORED RESEARCH INCOME 1978/79

	Amount ($'000) (1)	Per cent (2)
Federal Government		
NSERC	86,901	24.3
MRC	52,141	14.6
SSHRC	11,288	3.2
Subtotal: Granting Councils	150,330	42.1
Other federal departments and agencies	53,399	15.0
Subtotal: Federal Government	203,729	57.0
Provincial Governments	62,881	17.6
Municipal Governments	576	.2
Subtotal: all governments	267,186	74.9
Gifts, non-government grants	80,647	22.6
Investment income	3,256	.9
Miscellaneous	6,078	1.7
TOTAL	357,176	100.0

Source: AUCC: Financial Statistics of Universities and Colleges 1978-1979. "Prepared by Statistics Canada for the Canadian Association of University Business Officers" (CAUBO).

search funds? And perhaps most fundamentally, what is meant by "sponsored research income" and what sort of expenditure do research grants and contracts cover, or subsidize?

* * *

Meaning of "sponsored research income". The term has been chosen by university business officers and Statistics Canada in order, I suspect, to fudge the distinction between research grants and contracts. In individual cases it may be difficult to know how to classify a particular award, but in principle the distinction is both obvious and important.

Grants are made for projects initiated by the researcher; they reflect scholarly and scientific priorities as the researcher sees them; and they generally (in Canadian practice) cover neither indirect costs nor the time of the principal investigator(s). The results are necessarily in the public domain.

Contracts, on the other hand, reflect the priorities of the sponsor; they may or may not make a significant contribution to scientific or scholarly enquiry; in many cases they may include an item for indirect costs and/or for the researcher's time, either supplementing his university salary or substituting for a portion of it. As a rule the results of contract research are first made available to the sponsor, although most contracts with university staff call for the eventual publication of the results at the option of the researcher, if the sponsor decides not to publish them himself.

In practice it may be difficult to distinguish grants from contracts. The financial provisions of both do vary, so that generalizations about the range of expenses they cover will be partially invalidated by atypical cases. Nor is identification of the initiating party an infallible guide. There are often informal contacts between university faculty and sponsoring agencies, with the consequence that some contracts are really in the nature of grants in masquerade. "Grantsmanship" means in part knowing what sorts of research are likely to obtain support from sponsoring bodies, and it involves the implantation (subtly or otherwise) of ideas for worthwhile projects in the minds of organization men, public and private. Indeed many contracts are quite openly initiated by the propsective investigator, though their content necessarily reflects also the needs of the agencies awarding them.

Cynics may see in contract research the corruption of scientific purpose and the sellout of academic independence. There are undoubtedly instances where research priorities get distorted because funds for "free" research are hard to come by and contracts are available for projects of slight scientific or scholarly promise; indeed, the frequency with which this happens is likely to increase as universities suffer financial hardship, and faculty seize their opportunities where they can find them. The urgency and desirability of engaging in such behaviour may even be impressed upon faculty by panicky or despondent university administrators.

The mercenary character of contract research, however, is easily overstressed. It is not necessarily trivial or scientifically vapid. The sealing of sweet research deals is not quite like marrying for money; the behaviour of researchers on the lookout for contracts may be more akin to seeking out the company of rich women and marrying for love. Only the passionate scientist knows for sure.

The distinction between grants and contracts would be unimportant were it not that the cynic's view may be invoked to discourage all contract research, or indeed any arrangement in which the full costs of research -- salary and non-salary, direct and indirect -- are met from outside the university. Opinions on this will affect one's recommendations for government policy in the sponsorship of research.

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Reliability of the data. Probably a higher proportion of grants income is reported than is the case with income from research contracts. Both, it will be recalled, normally are awarded to the individual faculty member rather than to the university. No doubt accounting practices vary among the universities, with some being more insistent on knowing about all grants and contracts, as well as any significant amounts of consultancy income, received by faculty. However, if contract obligations can be fulfilled on a part-time basis, in addition to one's regular responsibilities as a faculty member (that is, if they are really a glorified form of consultancy), and if they do not require the large-scale use of university equipment and supplies, the sums involved may go unreported.

Grants are less likely to be held without the official knowledge of the university, although the docking of an administration fee from grants which are handled by university financial officers may discourage their reporting. In most instances, however -- especially in the case of MRC and NSERC grants -- granting agencies may require university administration and university accounting for research funds. Nonetheless some forms of award (such as leave fellowships, which are not included here under the "research grants" category) may be exempt. All this is to suggest uncertainty about how seriously to take the data reported by university financial officers, especially in the case of contract research. Since university financial reports to the Canadian Association of University Business Officers (CAUBO) form the basis for Statistics Canada data on university finances, the reliability of the Statscan data is open to question.

For this reason I ran a loose test on the data supplied by the universities to the CAUBO, by comparing it with figures published by the National Research Council, and with information contained in annual reports of the three granting councils (Table II-9). In both cases, the data (unlike the CAUBO/Statscan data) come from the sponsors rather than from the recipients. The comparison shows that the universities may be under-reporting sponsored research income from the federal granting councils by as much as ten per cent, although differences in accounting conventions vitiate any strict comparison. Since, of all forms of sponsored research income, funds from the federal granting councils are the most likely to come to the attention of university accountant, it is quite possible that under-reporting from other sources substantially exceeds ten per cent.

Of the comparisons made in Table II-9, one is between the CAUBO/Statscan data and data from the annual Directory of Federally Supported Research in Universities, published by the National Research Council. For each item except NSERC grants, the CAUBO/Statscan data exceed the figures given in the NRC directory — grossly so in the case of SSHRC and in the case of departments and agencies other than the granting councils. It appears if one looks only at columns 1 and 2, either that the universities are inflating their sponsored research income (which they might do, given the problems of classifying certain types of operating income, and the prestige associated with being a research-oriented university), or that one should take very seriously the warning in the NRC directory, that, "The projects listed, in many cases, form only a part of the entire funding activity of a department or agency, thus the fiscal total is

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TABLE II-9

A COMPARISON OF DATA-SOURCES ON FEDERAL SUPPORT FOR UNIVERSITY RESEARCH 1978/79

	NRC Directory (1)	Statscan/ CAUBO (2)	Annual Reports of Granting Councils (3)
NSERC	96,704	86,901	96,562
MRC	49,380	52,141	57,099
SSHRC	4,203	11,288	13,696
Subtotal	150,287	150,330	167,357
Other	23,231	53,399	NA
TOTAL	173,518	203,729	NA

Sources: National Research Council: Directory of Federally Supported Research in Universities (1978-1979 edition).

AUCC: Financial Statistics of Universities and Colleges 1978-1979 "Prepared by Statistics Canada for the Canadian Association of University Business Officers" (CAUBO).

Annual reports of the Natural Sciences and Engineering Research Council, the Medical Research Council, and the Social Sciences and Humanities Research Council, for 1978/79.

not necessarily equal to the gross amount distributed by a funding body for research support."

Do the universities over-report, or does the NRC directory under-report? The directory's data on NSERC grants, and the information drawn from the annual reports of the granting councils, suggest that the university figures, far from being inflated, may even err on the side of modesty, in the sense that funds which do support research in universities are not administered by university business officers and do not appear in university financial reports. One case in point is the NSERC grant -- about $1.8 million in 1978/79 -- for the support of TRIUMF, (Tri-University Meson Facility) located on the UBC campus. Quite possibly, however, part of the discrepancy is explained by non-coincidence of the university financial year with the financial year of the granting councils.

2.4.2.1 The Traditional Role of the Federal Granting Councils

The research support functions formerly performed by the National Research Council (NRC) and the Canada Council were taken over in 1978 by the newly-created Natural Sciences and Engineering Research Council (NSERC) and the Social Sciences and Humanities Research Council (SSHRC). These two councils and the Medical Research Council (MRC) together provide about 42 per cent of the universities' research support income.

Historically, the principal job of the granting councils has been (in the words of an MRC policy statement) "to support good research initiated by competent investigators in fields of their own choice". The councils' traditional role in supporting university research has been largely a passive one, leaving the initiative with the researchers themselves rather than allocating funds according to an inventory of national needs.

2.4.2.1.1 Direct assistance to researchers

There are many kinds of research grant, and the form of the grants which are made -- in addition, of course, to the amount of money available -- directly affects the development of the universities. Not only the universities' research capabilities, but the quality of their teaching at both the graduate and the undergraduate levels, are affected by the practices of funding agencies.

Various types of grant may be distinguished from each other on the basis of:

--specificity of the subject for which the grant is made: a single project, a general area of research, or research training including the reorientation of the scholarly interests of established researchers;

--method of allocation: by peer review of proposals originating from the investigators according to their own conception of research priorities; by peer review of proposals aimed at responding to previously announced research priorities; or by administrative decision, presumably consistent with articulated policy objectives;

--recipient(s): single researcher; a research team with one or more named principal investigators; university departments or their chairmen; universities or university presidents;

--term: the number of years for which funding commitments are made;

--strategy for making best use of funds: to build on existing areas of strength, to initiate new areas of strength, and/or to make up deficiencies (by subject area) or disparities (by institution or region);

--coverage: the types of expenditure met by the grant, i.e., part or all of the costs related to specific projects:

:salary or part-salary of principal investigator(s);

:research assistance including that provided by graduate students;

:equipment and supplies;

:services, e.g., computer, consultancy, secretarial,

:travel;

:accounting and administration of the grant;

:indirect costs, e.g., space use of shared library or laboratory facilities;

and/or the costs of providing research infrastructure:

:current expenditure: costs of running a research facility, e.g., a laboratory or computing centre; and

:capital expenditure: purchase of expensive equipment suitable for several research projects; library resources; buildings.

In Canada the standard form of grant is a subsidy awarded to individual faculty members, or occasionally to groups of researchers, to assist them in meeting the costs of specific projects over a period of one to three years (in medical research, up to five years). "Standard form grants" (if we may invent a term) are awarded on the basis of peer adjudication without reference to criteria other than the scientific or scholarly merits of the application. They cover materials, equipment and supplies, salaries for research assistants, secretarial and other services, travel (transportation, hotels, meals, etc.) and generally all types of expenditure incurred in research, with two major exceptions: they do not cover any part of the salaries of the principal investigators, nor indirect costs. A number of different programs from each council are grouped together under our heading "standard form grants". (Table II-10).

Direct assistance to researchers, on the model just described, accounts for most of the grants administered through the three councils. The 1978/79 figures for standard form grants and other major types of council activity are given in Table II-10. These other activities include research subsidies which differ in some way(s) from the standard form; some of them will be described later. At the moment, it is important to trace how the standard form of research support has affected the development of the universities.

* * *

As a result of the policies of the granting councils, all faculty members at Canadian universities have access to funds for the support of research on projects they themselves deem to be worthwhile. Basically, university faculty in Canada are free-lancers in research. They rely upon the universities for office and laboratory space, for their salaries, and for time free from other duties to conduct research. Equipment costs, assistants' salaries, supplies, travel funds, and other research expenditures are normally covered by grants for which they may apply to the appropriate council or to other funding agencies.

The extent to which scholarship and the conduct of research depends upon support from the granting councils varies considerably from one discipline group to another. There are distinctive research support patterns in the humanities and the social sciences, in the biomedical field, in the natural sciences, and in engineering.

In the humanities and social sciences, most research requires little or no special financial assistance, provided the necessary research materials are available at the university. Non-university funds may be required for travel to obtain access to documentary sources or manuscripts, to use research collections in distant libraries, or for interviews. The sums involved are frequently modest, at least by comparison with frontier research in other disciplines. A grant obtained and spent one year may provide the scholar with the materials he needs for a period of five years or more. Some projects, such as those involving survey research and extensive data manipulation, are quite expensive and cannot be conducted other than with special research support funds. But for the most part, the limiting factor is the principal investigator's time, especially since the character of the work is such as to severely limit the amount of help which even the most able research assistants can provide.

Since lack of time is typically the factor which limits research effort in the humanities and social sciences, it is perhaps not surprising that only five or six per cent of the estimated 16,000 faculty in these discipline-areas apply for

TABLE II-10

GRANTING COUNCILS: EXPENDITURE BY MAJOR AREA OF ACTIVITY 1978/79

(figures are in millions of dollars)

	NSERC (1)	MRC (2)	SSHRC (3)
GRANTS			
"Standard Form" Grants	68.3	41.6	8.3
(percentage of grants budget)	(71%)	(73%)	(61%)
Grants to Institutions	20.4	14.6	5.4
(percentage of grants budget)	(21%)	(26%)	(39%)
Strategic Grants	7.4	.6	nil
(percentage of grants budget)	(8%)	(1%)	
Other Grants	.5	.3	nil
(percentage of grants budget)	(1%)	(1%)	
Subtotal ("Grants budget")	96.6	57.1	13.7
(percentage of Council budget)	(88%)	(91%)	(45%)
FELLOWSHIPS, SCHOLARSHIPS, RESEARCH TRAINING GRANTS, AND SCHOLARLY EXCHANGES	12.0	5.7	13.3
(percentage of Council budget)	(11%)	(9%)	(44%)
OTHER	1.1	.2	3.4
(percentage of Council budget)	(1%)		(11%)
TOTAL (Council budget)	109.7	63.0	30.4

Note: Each council has distinctive programs; even where programs are broadly similar, the terminology used frequently varies. Moreover, the councils group their programs under different headings in their annual

TABLE II-10 (concluded)

reports. Accordingly, the categories used in this table have been defined in such a way as to make the figures as closely comparable as possible; and some of the terminology has been invented in order to avoid using terms having different meanings for different councils. *Grants* do not include stipends or salary support for principal investigators except in two cases: *strategic grants* (see text, Section 2.4.2.3.2), and *grants to institutions* (see text, Section 2.4.2.1.2); the latter include fellowships when the university applies on behalf of the grantee or must actively support his application, for example by promise of appropriate academic rank. *Fellowships, etc.* consist of stipends for university faculty who are relieved of their normal responsibilities and may be away from their home institutions, and for graduate students; but it should be noted that additional graduate student and research trainee support is provided out of research grants to faculty (see Section 2.4.4).

Sources: Annual reports of the Councils.

research grants to the SSHRC, in spite of the Council's position as near-monopoly funder in the relevant disciplines. (Some contracts are available, mainly through government departments and agencies, though their magnitude appears to be small in relation to the grants made through the SSHRC.) In 1978/79 the Council awarded about 770 research grants, with a total value of just over $8 million.

Perhaps the most remarkable thing about the research support policies in the humanities and social sciences is that grants are available for all projects which are favourably assessed by a scholar's peers. In 1965/66 the Canada Council adopted an open-ended policy of supporting all research grant applications that passed a prescribed test of merit, regardless of total cost. This policy remained in effect as long as the Council retained its research support function (Milligan: forthcoming) and was inherited by the SSHRC in 1978/79. It appears to have been endorsed by the new Council in its five-year plan, which states that "All proposals which are rated highly by several outside assessors receive funding" (Canada, SSHRC, 1979b: 16). In practice about 70 per cent of the applicants are successful in obtaining support, not necessarily at a level even close to the sum applied for, but still in an amount deemed adequate by the assessors to carry out the approved parts of the project described in the application. The current 70 per cent success rate compares with a 1970/71 and 1971/72 success rate of almost 85 per cent -- an indication that the budgetary restrictions on the Council, and perhaps the generally more sober mood in the universities during the 'seventies, has induced assessors to be more critical than in the recent past.

It may occasion surprise that the open-ended policy of supporting all highly rated projects has survived the decline in public funding (in constant dollars) experienced by the Councils during the mid 'seventies. To maintain the policy, the Canada Council cut out some programs, such as support for library acquisitions, and cut back in others; for example, it reduced the scale of its largest program, the pre-doctoral fellowships. These expedients, however, were successful in enabling the Council to maintain its research support policy only because of a 30 per cent decline in the number of doctoral fellowship applications (which reduced the number of awards without sharply diminishing the success rate), and a 20 per cent decline in the number of research grant applications (Milligan: forthcoming). As noted above, assessors have also been tougher.

The decline in the number of applications in both the major program categories relevant to the support of scholarship, as administered by the Canada Council and more recently by the SSHRC, is a telling indicator of the serious situation facing the social sciences and humanities in Canada today. It appears that in these fields the effective restrictions on university research derive from the dismal employment prospects facing recently-graduated Ph.D.'s (whose theses make a major contribution to research), and from a shortage of faculty time available for research.

The factors which limit research in the natural sciences and engineering are rather different. In these disciplines, equipment and supplies are vastly more expensive than in the humanities and social sciences, and more of the work can be conducted by professional research assistants or by graduate students under the supervision of the principal investigator. Under these conditions the funds available to meet direct non-salary expenses are definitely the major restriction on the conduct of research. Although in engineering it is likely that about half the funds received in aid of research derive from contracts, the pure sciences rely very heavily on the NSERC grants. Since most research requires a regular infusion of funds, many faculty members would be forced simply to quit doing research if they could not obtain an annual grant from the Council. A large grant will enable the researcher to conduct his work on a relatively generous scale, and a smaller grant will mean that he has fewer graduate students and less or inferior equipment, and hence is limited in the number of projects he can conduct; but the character of the work is frequently less affected than is its scale.

Perhaps these factors are the ones that explain the manner in which the NSERC allocates its operating grants. The policy may be summarized as: (1) funding newly-appointed faculty for a period of three years or so, to get them on their feet and give them an opportunity to prove themselves; (2) making grants primarily on the reputation of the applicant rather than on the project for which funding is sought; and (3) spreading the available funds around to almost everyone who is "in the circuit" on the assumption that each will learn to live with less than he would like, but that few if any good scientists will be denied altogether the opportunity to engage in research.

Through the NSERC's operating grants program, almost 5300 faculty members -- just under 60 per cent of the some 9,000 full-time teaching staff in the relevant departments -- receive funding (Canada, NSERC, 1979b: 16; Canada, NSERC, 1979: 32). Reportedly, about 90 per cent of the applicants in any one year obtain a grant, though it may be half or less of what they ask for. One way of interpreting the high success rate is to hypothesize that a person who is unsuccessful in two or three competitions may effectively drop out of the research force. This tendency would be encouraged by the practice of making grants on the basis of the applicant's reputation, especially since without funding a faculty member cannot conduct research and therefore cannot realistically even enter the competition.

Accordingly, perhaps the key datum to look at is not the success rate, but the ratio of grant recipients to full-time eligible faculty. In 1974/75, the ratio was almost 80 per cent for the group aged under 35, but it declined sharply among older faculty. Less than half of the faculty aged 45-49, and about a quarter of those aged over 55 received grants (Canada, NSERC, 1979b: 16). This profile is consistent with European and American data correlating research productivity with age, though the apparent decline in research activity may possibly be exaggerated by the NSERC figures since senior scholars may have greater access to funds obtained through contract. Indeed, the overall "research force participation rate" figure published by NSERC -- the 60 per cent figure -- is probably an understatement since contract funds are an important source of support in the applied sciences.

In the biomedical field, research support patterns are again distinctive. The Medical Research Council supplies about half the research funds in the relevant disciplines; its activities are complemented by specialized agencies, many of which support research on specific diseases. In addition, the medical schools themselves generally support research rather more heavily than other faculties can afford to do. This is possible because of the close association of medical training with clinical practice, which in most universities yields an income for the medical schools. Nonetheless, for certain areas of biomedical research, the MRC is virtually the only available source of funds.

MRC research support policy is affected by its non-monopoly position, by its "mission orientation", and by the concentration of medical researchers almost exclusively in the 16 medical schools. These circumstances enable, and perhaps even encourage, the Council to exercise much tighter controls over the research it sponsors than do the other two granting councils.

It is the policy of the MRC to fund the best proposals at a level judged adequate by the assessors to carry out the project envisioned in the application. In effect, the Council says that to do "x", the researcher will need so many lab assistants, such-and-such equipment, and a supplies budget of "y" dollars; the sums allocated will generally be less than the optimum, but will still be tailored to meet the requirements of the project. Proposals are given a priority ranking, and a line is drawn somewhere on the list according to the Council's budget; those above the line get funded and those below it do not.

To some extent the priority ranking of projects is affected by the MRC's position as only one of several funding agencies. It regards itself as the basic agency for the support of biomedical research, and it accordingly funds projects which have potential application to several types of disease; more specialist and clinically-oriented agencies can rest on the base provided by the MRC. When there is a project which comes within an area of overlap between the MRC and a specialist agency (say, the National Cancer Institute) the two bodies sometimes reach informal agreement as to which of them will support the project in question. The MRC's cutoff point for successful applications tends, in areas of overlap, to be somewhat higher than in areas for which it is virtually the only funder available. This is an important fact in considering the significance of the data on applications and success-ratios.

It is estimated that about 4000 faculty in the relevant university departments (mainly in the medical schools) have the appropriate academic base from which to apply for an MRC grant. The Council has obtained opinions from the deans of medicine regarding the aptitude of their faculty for medical research; in the deans' judgement, about 70 per cent are worth supporting for research purposes (this would make about 2800 of the 4000). Of these, about two thirds, according to MRC staff, obtain research support through the Council -- that would make 1850, rather more than the 1656 officially stated to be receiving support in 1978/79. The latter figure suggests that about 40 per cent of eligible faculty are receiving MRC support; some of these will also be obtaining funding from other agencies concurrently. But perhaps the most telling datum is that in 1980/81 the Council intends to award only about 170 "new grants", that is, grants to beginning researchers or to seasoned researchers who are not simply proposing continuation of a project already funded in previous years. Currently, in the "new grants" category, only about one applicant in four is successful.

* * *

It is appropriate now to return to our general proposition, that Canadian university faculty have access to external funds for the support of their research. From our survey of the policies and practices of the three councils, relating to the standard form of grants, we may infer that the proposition means very different things in different discipline-areas. In the humanities and social sciences, research support is relatively easy to obtain but many projects do not rely on them or do so only for a short period of time in relation to the life of the project; the proportion of faculty applying for and receiving grants is small. In the natural sciences, very little research can be conducted without external support; such support is fairly easy to obtain as long as a researcher maintains a satisfactory level of productivity, though the amounts obtained may be far less than hoped for by the applicant and may severely limit the scale of the work in which he engages. In engineering the situation is similar, though the readier availability of contract research reduces the faculty member's dependence on NSERC. In the biomedical field, grants are quite hard to come by and depend more than in the physical sciences on the substance of the project; but research is funded at a level adequate to the project, and those who do not obtain MRC grants may nonetheless be successful -- depending on the area in which they work -- in obtaining support from other agencies.

Now, let us look at this set of facts from a different angle, from the university's perspective rather than that of the researcher.

To maintain high standards in teaching the university needs an academic staff who are actively contributing to the extension of knowledge and the furtherance of scholarship. The availability of external research funds has assisted the universities enormously in the recruitment of an active faculty. This was a particularly important factor in the expansion of a decade ago, when deans and departmental chairmen could -- and did -- point to the high success ratios in the council's grants programs as evidence of the easy availability of research assistance. Conversely, the experience of the 'seventies (in which research support through the granting councils has dwindled, especially in the natural sciences and engineering) has been a major handicap in ensuring the retention of the most dynamic and productive faculty. The problem has not been that very good researchers have been unable to obtain external funding, but rather that the scale and concentration of the funds available has been such as to leave foreign (particularly U.S.) universities in a far superior position. One may properly conclude that in the recruitment and retention of staff, the availability of adequate external research funding is of fundamental importance, and that the Canadian record has been mixed -- following very largely the budgetary fortunes of the granting councils.

Research funding also affects university staffing in another way. Outside the humanities and the social sciences, most faculty members are dependent upon annual or biennial (or occasionally less frequent) renewal of their grants if they are to remain active in research. The councils, with their networks of assessors and consultants, constitute a valuable external monitoring agency on the research performance of university faculty. The councils' decisions, of course, are not infallible -- for this reason any near-monopoly situation in research funding is regrettable -- but they do offer a means of identifying, at a relatively early stage in their careers, those whose research promise is slight. Negative decisions taken by an outside body are not immune to charges of favouritism or parti pris, but external assessors are less suspect in these regards than are a person's colleagues from within his own department. In the latter, personal friendships and animosities inevitably arise; moreover, expertise in a particular faculty member's field may be lacking, and professional judgements may correspondingly be open to charges of ineptitude. These considerations do not apply, or apply only with diminished force, to the peer review processes undertaken by the granting councils. When a junior faculty member is unable to establish himself as a researcher of high repute among his peers, as would be implied by inability to obtain external funding -- it should be recalled that here we are discussing the situation outside the humanities and social sciences -- he is thereby discouraged from continuing to pursue an academic career. In addition, when a decision on renewal of appointment or on a tenure application comes up, staffing committees, departmental chairmen, and deans could scarcely ignore it if the candidate was unable obtain external research support.

Put simply, a faculty member who does not engage in research -- reflective enquiry and/or digging at the frontier -- is deadwood. Anything that assists a university in identifying these people, and in removing them, is an element in solving one of the university's most intractable problems. This may be one of the contributions made by the peer review system employed by the granting councils for the assessment of research support applications. It is limited contribution, though, because a negative assessment may come too late in an individual's career. Another limitation is that the character of research and scholarship in the humanities and social sciences is such that many faculty members, perhaps excellent ones, seldom have occasion to submit their work to external appraisal for research funding purposes, as is routine in some disciplines.

The policies of the granting councils also affect Canadian universities and the characteristics of the Canadian reseach system in ways not related to staffing. The councils' practice of spending the bulk of their research support budgets on grants to individual faculty, to cover direct costs only, contributes to:

--the conduct of research through a large number of individually directed projects rather than through the concerted efforts of research teams under the direction of academic entrepreneurs;

--equality of status among academic staff, or a prestige ranking among them based on achievement rather than occupancy of academic chairs or the holding of honorific-administrative positions;

--the strengthening of faculty independence vis-à-vis the university administration;

--the scattering of research facilities and activities among the universities, though not evenly so;

--the development of Canadian scholarship and science neither on the basis of deliberate specialization nor of planned comprehensive coverage of major areas of enquiry;

--the orientation of Canadian scholars and researchers to an international academic community and the intellectual and scientific problems which preoccupy it, rather than to specifically Canadian problems, needs, or goals, or to the needs of industry and technological development.

It would be foolish to contend that all these features of Canadian academia are traceable uniquely to the practices of the granting councils; still, these features are all linked to the free-lancing role of faculty in research; and this in turn is made possible by the availability of "standard form" grants. The councils' role in the administration of these grants has been largely passive or reactive, leaving the initiative to the applicant. It is in the university's interest to assist, not to restrict, its faculty in obtaining external support for their research activities. Thus the direction of research in the university and to some extent curriculum development as well, follow the intellectual tastes and predilections of the staff and are very little subject to direction by departmental chairmen, institute directors, or senior administrative officers. This is one of the major factors to bear in mind in any discussion of the rationalization of university systems and the choice of areas of specialization for individual institutions.

2.4.2.1.2 Grants to institutions

A portion of the granting councils' research support funds have traditionally gone, not directly to the researchers, but to institutions. In some cases the effect of these grants on the universities, individually and collectively, has been very different from what has been described in the previous section.

The councils' grants to institutions in 1978/79 are summarized in Table II-11. A rather large number of programs have been grouped together in this table under five headings, of which only the "general research grants" category has been labelled in accordance with established usage. Although it is inconvenient to coin new terms, there was really no choice about it, since there is no standard terminology.

TABLE II-11

GRANTING COUNCILS: GRANTS TO INSTITUTIONS 1978/79

	NSERC			MRC			SSHRC		
	program	$ m.	%	program	$ m.	%	program	$ m.	%
GENERAL RESEARCH GRANTS	general research grants	4.7	4.9	general research grants	.7	1.2	general research grants	1.2	8.8
EQUITABLE TREATMENT GRANTS	regional development grants	2.0	2.1	development grants	1.5	2.7			
	special assistance to small universities	.3							
RESEARCH APPOINTMENTS				associateships or career investigators	2.5	4.3			
				scholarships	2.2	4.0			
FACILITIES AND EQUIPMENT	Core grants	3.4	3.5	major equipment, purchase and maintenance	2.6	4.5			
	Institute grants	1.0	1.1						
	Equipment grants	6.3	6.6						
CONCERTED ACTION GRANTS	negotiated development grants	2.9	3.0	MRC groups	5.0	8.9	program grants		
							editorial grants	1.5	10.8
TOTALS		20.4	21.1		14.6	25.6		5.4	39.6

Note: a - Percentage of grants budget (see Table II-6, Explanatory Note)
b - For 1977/78; not listed for 1978/79
c - Comprises Equipment grants, Major Equipment Grants, and Major Installation Grants

General research grants are grants to the president of the university and are allocated within the institution at his discretion. The size of the aggregate grant is based on a formula which reflects the dollar volume of grants awarded to faculty at the institution concerned.

General research grants are a device to supply the university with a small fund for assisting faculty who did not obtain their own grants, for "topping up" grants where necessary for the purchase of equipment or where otherwise judged desirable, for maintaining facilities and equipment used in several research projects (i.e., for covering some portion of indirect costs of research), or for other purposes.

In the case of SSHRC, the Council does not itself review applications for less than $2500 (a sum which can easily cover the direct non-salary costs of certain projects in the humanities and social sciences, though such an amount would be risible in the natural sciences and in biomedical research). The universities are expected to make their own grants where less than $2500 is involved; the SSHRC general research grant provides them with a means of doing so. This arrangement presumably explains the relatively high proportion of the SSHRC budget which goes to this particular program. It is not really a very satisfactory arrangement, since it encourages applicants to ask for more than $2500 if they can credibly do so. Moreover, there is unlikely to be a close correlation between the sums granted for expensive projects and the need for supporting a large number of inexpensive ones. For example, a single project based on survey research can easily cost the same as a lifetime of scholarly work in libraries.

No doubt the general research grants programs involve some inequities in allocation of funds among institutions. They also place a premium -- from the university's point of view if not from that of the individual researcher -- on expensive projects. Against these disadvantages must be placed the evident need for discretionary research funds for administration within the university, if for no other reason than that the granting councils can make mistakes. Apart from these general considerations, and the rather nebulous conclusions one may draw from them, it does not seem possible to identify a specific impact which the general research grants are likely to have on university development in Canada.

Equitable treatment grants. One disadvantage with the scheme of research support based on standard form grants is that the established universities may be able to capitalize on the fact that they got a head start: an initial advantage may be self-reinforcing. Although the concentration of research facilities may have its advantages, it may also result in inequitable treatment of certain institutions and may feed a grievance of certain regions where there are few long-established universities. The result may be a regional imbalance in the allocation of federal research monies, as shown in Table II-12.

To compensate for this inconvenient situation, two of the councils make grants to universities which appear to stand in need of beefing up their research establishments and research performance. I have labelled these "equitable treatment grants".

The MRC's Development Grants fall into this category. They are "designed primarily to assist in the recruitment or establishment of new faculty members with a major interest in research in those schools of medicine, dentistry and pharmacy where research activity is thought to be inadequate from the standpoint of the contribution it should make to professional education and health care". (Canada, MRC, 1979: 75) The Council makes a list of eligible schools, revised annually, which may take advantage of its development grants.

MRC Development Grants cover the costs of major equipment, operating funds for a two or three year period (after which researchers are expected to enter the regular competition for operating grants), and salary support for as many as ten years. These grants are made on condition that the appointee spend at least half his time on research, including supervision of graduate students. In some cases salary support is offered for visitors who will be at the institution for a period of six weeks to one year.

A program of Regional Development Grants offered by NSERC is in some ways analogous to the MRC development grants program, but it is made available only to two specified categories of university: French language institutions in Quebec, and small universities in New Brunswick and Nova Scotia. According to NSERC, "The general objectives of the Regional Development Program are to create, restore, or improve the environment for

TABLE II-12

PROVINCIAL SHARES OF FEDERAL RESEARCH FUNDS COMPARED WITH PROVINCIAL SHARES OF TOTAL CANADIAN POPULATION 1978/79

	NSERC (1)	MRC (2)	SSHRC (3)	Other Depts and Agencies (4)	All Federal Sources (5)	% of Canadian Population (6)
Nfld.	2.1	1.4	1.5	1.3	1.8	2.4
P.E.I.	.1	--	.1	..	..	.5
NS.	3.3	3.8	3.7	4.7	3.7	3.6
NB.	2.1	--	.8	3.8	1.7	3.0
Que.	20.5	32.4	27.0	27.6	25.0	26.8
Ont.	41.9	37.0	45.7	34.1	39.6	36.0
Man.	3.5	7.4	2.6	7.8	5.2	4.4
Sask.	3.4	2.0	.9	3.3	2.9	4.0
Alta.	10.4	8.8	6.5	7.5	9.4	8.3
BC.	12.8	7.2	11.4	9.9	10.8	10.8
All Provs.	100	100	100	100	100	100

Sources: Calculated from National Research Council: Directory of Federally Supported Research in Universities, 1978/79. Population data from Statistics Canada: Canadian Statistical Review (Cat. 11-003), Nov. 1978.

research in certain regions where, in the national interest, the need and value of doing so is clearly evident, and where the Council's other programs are not effective in accomplishing this objective" (NSERC, 1979: 44). Some of the grants are awarded to university presidents for a series of identified activities; others are awarded to individuals as leaders of research groups. A previously existing NRC program of "special assistance to small universities" has been discontinued, being in part absorbed into the regional development grants program.

SSHRC has no program similar to the MRC Development Grants or the NSERC Regional Development Grants.

Research appointments. Grants supporting the appointment of staff to research positions, with few if any responsibilities in other areas, are made only by the Medical Research Council. Although salary support is provided also through other programs, by each of the granting councils, the distinctive feature of the two programs described below is that universities are supplied the means to make research appointments, outside the context of a particular project or development scheme, for a period of several years. The awards are valid only for named incumbents; that is, the MRC's involvement is more extensive than merely augmenting a university's staff complements on condition that those appointed spend their time on research.

In 1956 the MRC inaugurated the Associateships Program, now called the Career Investigators' Program. It pays the salaries of a few outstanding individuals for whom research is a full-time career. Appointments are for five-year terms, renewable until regular retirement age, and may be transferred to another university if both universities agree. The university undertakes to supply adequate space and research facilities, and to give the investigator an appropriate academic rank. The non-salary costs of research are met through regular research grants, for which the investigator applies on the same basis as other university faculty.

The Council stopped making new awards under the Career Investigators program in 1975. It is an expensive program, and entails a heavy long-term commitment. Even if it were given high priority, not more than one or two appointments could be made in any given year.

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One of the original purposes of the program, to demonstrate the value of having high quality full-time researchers on the faculty of medical schools, had been achieved by the early 'seventies. This made discontinuance easier. On the other hand, those now holding appointments as Career Investigators will remain eligible to apply for renewals, and the program is not expected to be fully phased out until after the turn of the century.

The MRC Scholarships program provides for five-year research appointments on a full time basis. In most respects it is analogous to the Career Investigators program, though MRC Scholarships are non-renewable and their purpose is somewhat different. An underlying consideration is that even a researcher of outstanding promise may be swamped by teaching duties in his first years as a staff member. Accordingly, the Scholarships program is intended to launch a person on a research career, on the assumption that he will be an established researcher at the conclusion of the five-year term, during which he will normally be appointed at the rank of assistant professor. It is presumed that when the five years are up, he will be able to take on the normal range a university faculty member's duties and still continue his research, supported no doubt by the usual troop of graduate students and post-docs.

Facilities and equipment (purchase and maintenance). Standard form grants cover the purchase of equipment which is required for a research project. However, where the costs are large (over $5000 for NSERC, or over $10,000 for MRC) a separate or additional application for equipment is required.

NSERC Equipment Grants are applied for, as are standard form grants, by individuals or teams of researchers. On the other hand the university must support all applications by providing information on its equipment-purchase priorities and must supply a list of similar equipment already available within the university or otherwise accessible to its staff. In the case of major installation grants (over $200,000) a letter is required from the president of the university, indicating the importance that the university places on the proposed equipment or facilities. He must also indicate the extent to which the university itself proposes to provide support in the form of financial commitments, space, purchase of ancillary equipment, and funding of technical support staff. In view of the support necessarily provided by the university for NSERC equipment grants, and since the equipment may frequently be used for a number of different projects or by researchers not actually applying for it, it seems appropriate to regard equipment grants as going to the institution rather than to the individual applicant(s).

In the case of MRC Major Equipment Grants, there is little ambiguity about the recipient of the award. Applications may come from individual researchers, but the grants themselves "are normally made in the name of the head of the department, or other appropriate functional group within the institution, since it is the intent of Council that, while the needs of the principal user or users who submitted the application should receive priority, the maximum effective use is made of the facility by other qualified investigators" (Canada, MRC, 1979: 28). The Council also notes that very large installations may be provided on the understanding that they will be established as regional or national facilities, with special arrangements made for services to be provided to other investigators.

The effect of equipment grants on university development may be similar in many cases to the impact of standard form grants (see Section 2.4.2.1.1, above). With the larger items of equipment, however, the effect is to build up centres of concentration which in some cases will have a powerful impact on the type of work done in the department or university where the equipment is located.

Where this sort of concentration has occurred, NSERC also supports the running costs of research facilities ("Core Grants" and until recently, "Institute Grants"). The Council notes that the purpose of the Core grants program is to assist in the maintenance and operation of "very major special research facilities which would not otherwise be viable in Canada" (Canada, NSERC, 1979: 20).

Concerted action grants. The MRC is the only one of the granting councils to retain -- outside the strategic grants programs described in Section 2.4.2.3.2 -- any program aimed at bringing together and supporting teams of researchers who are expected to develop a position of leadership in a reasonably broad area of enquiry.

The MRC Groups program supports collaborative work over a period of years "in what appear to be especially productive areas" (Canada, MRC, 1979: 73). The program offers regular research support plus, where necessary, the salaries of investigators directing the work of a group. Applications are made by the president of the university, who must guarantee adequate space, facilities, and academic recognition for members of the group. These are negotiated grants, in the sense that the universities consult with Council staff during development of an application.

The NRC's Negotiated Development Grants, terminated in 1976 after ten years of existence, were similar to the present MRC Group grants in rationale and coverage. On the other hand the NRC's Negotiated Development Grants were rather more in the character of "seed money" than continuing support. The university had to commit itself, for example through its staffing policies, to the long-term support of concerted effort in the area developed with the assistance of NRC. Naturally, this feature of the program made it less attractive to the universities when general provincial funding started to decline (in real terms) during the 1970's; and the provincial governments generally disliked being saddled, by virtue of an agreement between the universities and a federal granting agency, with a long-term financial commitment. No doubt these disadvantages contributed to the 1976 decision to drop the negotiated development grants.

SSHRC Program Grants and Editorial Grants, though described here as "concerted action grants" are rather different in purpose from the MRC Group Grants and the former NRC Negotiated Development Grants. The two SSHRC programs are designed to draw on an existing concentration of scholars to accomplish specific tasks, rather than to develop -- on a selective basis but with a view to the longer term -- a capacity for excellence. Program Grants support co-operative research on relatively large scale projects, often involving several disciplines; Editorial Grants finance the preparation and publication of major scholarly documents such as collected works, dictionaries, and atlases. In both cases, coverage may include some or all of the salaries of principal investigators as well as the usually supported research costs. Applications are made after extensive consultation with Council staff; about one in four proposals is accepted (resulting, recently, in about two or three new awards per year).

It is evident that several forms of grants to institutions, especially those aiming to promote concerted action or financing the installation of large scale research facilities, involve the granting councils much more directly and openly in university development than the standard form grants do. To some extent, the contrast between direct assistance to researchers and grants to institutions is unwarranted, since it would be a mistake to pretend that standard form grants do not have a profound impact on the character of Canadian universities and the quality and direction of Canadian scholarship. But grants to institutions are frequently for a relatively long term, or finance equipment which will be in use for several years, and the sums involved are typically large. Thus the granting councils' decisions under these programs have an obvious impact on university development, affecting the success of particular institutions in achieving a position of leadership, both generally and in specific areas of academic and scholarly endeavour.

2.4.2.2 Research Support from Sources Other than the Granting Councils

Of the total of sponsored research income, rather more than half -- about 58 per cent according to university financial reports -- comes from agencies other than the federal granting councils. But it is very difficult to characterize these funds, for example, by type or scale of project, contribution to project cost, or method of allocation. It is not even possible to say what proportion of these funds take the form of project subsidies as opposed to the support of research personnel, contributions to infrastructure, or largely undirected research resources. It is correspondingly hazardous to generalize about the impact of such research support on the universities or on university development.

Still, it can and should be said that almost all research funding other than through the granting councils is focussed on particular areas of enquiry, generally those with a direct application to topics or problems of specific concern to the sponsor. As a result, this form of funding is vitally important to certain universities and to certain departments or faculties. For example, faculties of medicine rely heavily on funding from the federal Department of Health and Welfare (which alone supplies about $12 million in research support to the universities) and provincial departments of health.

Faculties of agriculture and schools of veterinary medicine are similarly dependent on massive support from departments of agriculture. A case in point is that of the University of Guelph. Guelph, which was founded on the base of the Ontario Agricultural College, obtains 19 per cent of its total operating income from provincial research support, most of its presumably from the Ontario Department of Agriculture. Provincial funds alone put Guelph among the top three universities in Canada, if institutions be ranked by percentage of operating income attributable to sponsoring of research.

More generally, faculties of engineering (where familiarity and experience with industrial problems are needed for effective teaching in some subjects) are said to derive about half their research support from industrial and government contracts. In some other parts of the university, say, in departments of economics and in faculties of law, the reliance on contract and "mission-oriented" research is not as great as in engineering, medicine, or agriculture, but contract work and consultancy may still, within limits, complement "pure" or "free" research and contribute to high quality performance in instruction.

The general point is that within certain parts of the university, existing establishments and activities could not be sustained, and/or performance would decline in quality, without the availability of contract and applied research funds, and a form of research entrepreneurship which enables university faculty to tap these sources of support. One may go further: where such funds are available, growth and development is possible even in times of general financial stringency -- though it should be noted that in these cases development tends to reflect priorities established outside the university.

Selective development, not subject to effective control or direction by university senates or governing councils, is the more likely to occur when "targeted" research support is readily available but undirected funds "to support good research initiated by competent investigators in fields of their own choice" are in short supply. This would be even more true when, in conditions of general penury, contract research, and research support in areas externally designated as having special priority, are available under more generous conditions than apply to run-of-the-mill research grants. The most obvious case is where, for certain projects, research support carries a stipend for the principal investigator(s) but most research grants do not. Under such conditions successful research entrepreneurs, and the departments which provide them with office, lab, and title acquire a measure of independence within the university which other faculty and departments are unlikely to have.

The ramifications of the selective availability of external research support, on a basis which may yield organizational and individual rewards, may well be extensive. Curriculum structure, the faculty's conception of the role of the university in society and of the functions and responsibilities of its teaching staff -- even prevailing notions of what scholarly work entails -- will be affected. The most negative construction one can put on this is that the universities may become intellectually barren as their faculty are enticed into academically trivial pursuits. Still, it must be remembered that the Charydbis to this particular Scylla is the isolation of the university from the needs and concerns of the society which sustains them, and indeed, from the needs and concerns of their own students.

One must be conscious of potentially deleterious effects of certain forms of research funding; but the ivory tower response, which shuns all contract funds and directed research subsidies, is not simply old-fashioned: it fails to recognize that in some disciplines good quality work requires close links between the universities and other institutions, just as for some scholarly work abstraction from the immediate and the transient is a basic prerequisite of excellence.

2.4.2.2.1 Government and industry: Joint funding of applied research

The main concern of the provincial governments in the funding of university research appears to lie with the support which research can give to economic development and/or to the provision of certain government services as in health care and education. Some of the provinces are apparently worried about the impact which federal funding of research may have on university development and on univer-

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sity operating costs, and this impels them towards defining a provincial research policy. Nonetheless their actual involvement in research funding has hitherto been pretty much limited to the support of "targeted" research. Concern with assisting in industrial development through the acquisition of appropriate knowledge and technique predominates: immediate, practical goals are what mainly motivate provincial governments in research matters.

Naturally, this is true too of industry; and several federal government departments share the research concerns of the provincial governments and industry.

One consequence of the desire to stimulate those research projects which it is hoped will have a direct and relatively speedy impact on economic development has been the establishment of applied research institutes or centres within universities. This has been done on a negotiated basis between the universities and one or both orders of government, sometimes with the support of industrial associations or particular firms. Grants for the establishment of research institutes within universities, or associated with them, may cover capital installations, overhead, space rental, and professional salaries as well as the costs normally eligible for research subsidies offered by the granting councils under their regular programs. These centres, once established, may be expected to be self-supporting through contract research (much of it, perhaps, with the original sponsors), or may continue to be dependent on grants from government departments and perhaps from non-governmental agencies.

From the universities' point of view, the attraction of applied research institutes is substantial, perhaps especially so when they are not wholly within the university but are merely associated with it. University faculty may then have access to the institute's research facilities, may obtain regular contracts from it, and may take advantage of its location and resources to help train graduate students. Part-time teaching arrangements may also be negotiated with institute staff, while regular university staff may take on temporary (but perhaps regularly renewed) part-time positions in the institute. All this gives greater flexibility in staffing and wider access to specialized resources -- people and equipment.

If the institute is not wholly within the university, its professional staff will not have a claim to tenured

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academic positions and the university will not have an obligation to maintain research facilities if the institute turns out to be less than fully self-supporting. The university thus need not enter into long term commitments involving risk and rigidity in the allocation of its resources. The short term advantages which the presence of an applied research institute may bring also apply when it is integral to the university, though the long term commitments may be greater.

2.4.2.2.2 Alberta: The Heritage Foundation for Medical Research

Most provincial sponsorship of university research draws upon existing facilities and talents with the aim of harnessing them for projects or purposes of specific interest to the provincial governments. There are, however, three provincial research support programs which are designed mainly to develop or expand the research capacities of the universities. They are Quebec's FCAC program, Quebec's support for biomedical research unner the CRSQ,(both referred to in the succeeding section), and Alberta's fledgling program of assistance to medical research using endowment income derived from the province's Heritage Fund.

The most spectacular recent development in the funding of research in Canada was the establishment in November 1979 of the Alberta Heritage Foundation for Medical Research, with an endowment fund of $300 million. The fund has started to generate an annual investment income of about $35 million, the unexpended portion of which will be reinvested and will swell the original endowment. Consequently the Foundation will be able in perpetuity to support medical research in Alberta in an annual dollar amount equal to about half the 1978/79 budget of the Medical Research Council (that is, about one quarter of the total direct funding of medical research in Canada at the present time).

The Foundation is not an agent of the crown; it operates independently of the government and of the legislature of Alberta, under the direction of trustees a majority of whom are (after 1985) to be nominated by bodies other than the government of Alberta. Its independence will be further buttressed by a Scientific Advisory Council and by an International Board of Review which will assess its activities and policies every six years, and make recommendations to the trustees.

It is as yet too early to describe in any detail the operations or policies of the Foundation, which is only now planning its operations. Nonetheless some indications of its future role are already available. The main thrust at least in the first few years will be to expand the number and quality of medical researchers in Alberta, and to provide them with basic facilities for their work. Premier Lougheed has spoken of bringing expatriate Albertans (mainly in the United States) back to their home province by offering them research appointments and the steady financial support which career researchers require, helping to make Alberta "a brain centre" for Canada. The Foundation will pay salaries of researchers, and will equip and renovate research laboratories or centres, as well as meeting their operating costs. But, at least in the first years of its operation, the Foundation is not expected to make capital expenditures -- the basic plant is largely in place, with room for expansion of existing activities -- nor is it intended to support research projects along the lines of the MRC operating grants.

Since the Foundation will build up infrastructure and support people rather than projects, the researchers supported through the Foundation will be seeking operating funds from MRC and voluntary associations such as the Heart Foundation or the Arthritis Society. This policy may not at first place very severe additional demands on these funding agencies, since indications are that the Foundation will proceed slowly to build up Alberta's research capacity (so that for the first few years the bulk of the annual income will be reinvested); but obviously in the longer term the complementary funding required of MRC and the voluntary agencies may be substantial if the Foundation does not itself award operating grants on a large scale. In that case, particularly as the real value of the investment income diminishes through inflation, it may appear that the size of the endowment -- large as it is -- may eventually be judged inadequate. In that case the Foundation has already been invited to ask for more.

There have been some rumours that the Alberta government might be receptive eventually to creating other research funding trusts on an endowment basis. There have, however, been no significant indications of an early move in this direction. Were this to happen, in the natural sciences and/or in the humanities and social sciences, the impact on Canadian university research and on Canadian universities generally could be pervasive. In the event of a general

Alberta initiative in research funding along the lines suggested by the creation of the Heritage Foundation for Medical Research, two developments would be of especial importance. One is the migration of brain power to Alberta, both from the rest of Canada and from abroad --- the source of recruitment naturally being very important from the point of view of other Canadian universities. Another is the increased demand on the funds of the federal granting councils. The councils could scarcely, without a quantum jump in the financial resources at their disposal, meet the reasonable and legitimate demands of first-rate Alberta researchers without rejecting meritorious applications from other parts of the country.

All this is, outside the medical field, entirely speculative. There are Alberta crown corporations and government departments which offer contracts and some grants to university researchers, but except in the energy field their research support is not disproportionate in scale to what is available from funding agencies in some of the other provinces; nor does the Alberta Research Council or any other agency have a distinctive role in strengthening the province's general research capability. The government is of course concerned with specific purposes such as the development of the oil sands or the support of Alberta agriculture. But this merely emphasizes that outside the biomedical field, Alberta research policies are broadly comparable the research support policies of provinces such as British Columbia and Ontario. The truly distinctive province in research matters is Quebec.

2.4.2.2.3 Quebec: FCAC and CRSQ

For two decades, the Quebec government has been engaged in a vast effort to advance the social and economic position of the Francophone majority within the province: in the first instance to "catch up" with Anglophone Canada in technological achievement and industrial development, and in the longer run to stimulate the building of a resolutely modern society, distinctive in its values and its institutions as well as in its language. These aspirations give the support of research an entirely different significance and character from what obtains in other provinces.

One goal of research funding in Quebec has been to place Francophone researchers in a better position to compete for federal awards through the granting councils and other departments and agencies. Another has been to identify and pursue objectives of which it is intended will contribute to social development (épanouissement) under the guidance of the state.

The earliest initiatives were in the biomedical field. The Quebec government's role in health-related research is described in a "green paper", Pour une politique québécoise de la recherche scientifique (Québec, Ministre d'Etat au développement culturel, 1979: 135-6):

> C'est le gouvernement fédéral qui, par les programmes de subventions du Conseil de recherches médicales du Canada (C.R.M.C.) et du ministère de la Santé nationale et du Bien-être social, a longtemps été le principal bailleur de fonds de la recherche médicale au Québec, du moins en ce qui a trait aux frais directs. De son côté, le ministère québécois des Affaires sociales défraie la majeure partie des couts indirects et des frais de base, en plus d'attribuer, lui aussi, des bourses et des subventions.
>
> Une bonne partie de ces recherches biomédicales est effectuée en milieux hospitaliers, c'est-à-dire dans des établissements qui relèvent de la juridiction du ministère des Affaires sociales. Celui-ci poursuit une politique amorçée dans les années 60 par le ministère de la Santé: cette politique vise à permettre aux chercheurs bio-médicaux francophones d'acquérir un niveau général d'excellence comparable à celui de leurs confrères anglophones, longtemps nettement favorisés par les modes fédéraux de financement. Au long des années, le Conseil de la recherche médicale du Québec, créé en 1964, et l'organisme qui l'a remplacé en 1975, le Conseil de la recherche en santé du Québec, ont adopté diverses mesures de subvention qui ont contribué au développement et à l'essor de la recherche bio-médicale en milieux francophones. C'est ainsi qu'on a vu émerger certains centres d'excellence qui, dans leurs spécialités, se sont taillé des réputations d'envergure internationale.

A more general initiative was undertaken in 1969 with the implementation of the FCAC program (Formation des chercheurs et action concertée). The program, which is run by the Ministry of Education, is aimed at strengthening the overall research performance and research capacity of Quebec's universities, particularly the French-language ones. Policy-makers were and still are concerned about the availability of knowledge and skill upon which Quebec industry and government may draw. The FCAC program seeks to build up research resources by concentrating on the support of research teams and, to a lesser extent, research infrastructure (centres or institutes).

About two thirds of FCAC funds -- currently about $10 million annually — are awarded for work on selected themes deemed to have special priority, so that the program has the appearance of being more oriented towards meeting a set of defined objectives than is the case with the main programs administered by the federal granting councils. On the other hand, the themes selected are quite broadly defined. Examples are "resources", "economic development and planning", and "Quebec civilization and culture". The breadth of definition gives substantial freedom both to applicants and to the peer-group selection committees. The result may be less restrictive than would at first appear.

One suspects that the FCAC program lacks the coherence which official descriptions of it would like one to believe it has; indeed the Conseil des universités has criticized it for the "saupoudrage" or thin sprinkling of its funds over many projects, and for its failure to restrict the proliferation of centres of concentration in certain fields such as land use and planning (aménagement) and northern studies (Québec, Ministre d'Etat au développement culturel, 1979: 140). Official policy is to seek further rationalization in the use of funds, to further emphasize teamwork and action concertée, and to link the allocation of funds to the development plans of the universities. In other words, research funding is to support the more general objective of rationalization and specialization of universities within a provincial system (see Section 1.5.2.6.6, above).

Administrative structures to accomplish this goal are set out in the 1980 white paper on scientific research entitled A Colletive Project (Québec, Ministre d'Etat au développement culturel, 1980). This policy statement announces the intention to create two new funding agencies for the support of research. One agency will administer the individual and team research grants, as well as the graduate fellowships, which are now the responsibility of the Ministry of Education through the FCAC program. The other agency will be for health or biomedical research, and will take charge of the grants program of the Conseil de la recherche en santé du Québec (CRSQ). Significantly, the new agencies, which will be funded by annual appropriations, will be responsible to ministers in line departments (ministres sectoriels). They will operate on the basis of peer-group adjudication, but will be charged with the responsibility of allocating research grants in accordance with the policies defined by the ministries to which they are attached (pp. 146-7). Of course it is impossible to know in what detail the policy guidelines will be issued, or how strictly they will be observed by the selection committees. One can only draw inferences from the white paper, which makes comments both on the institutions wherein a research capacity is to be developed, and on the substance of research activity. For example, the paper emphasizes that the teaching staff of the CEGEPs constitute a research resource which has hitherto been neglected, and it declares that this neglect must be corrected. In addition, the paper indicates that an increasing degee of direction may be given regarding the types of project which will be supported, in order to respect the research priorities of Quebec as judged by public agencies acting under the advice of experts.

Indeed, if one may draw inferences from the language of the white paper, the intent of removing program management responsibility from the line departments is to achieve administrative decentralization rather than to insulate the performance of the research-support function from political interference: the paper refers to the "efficiency" of administrative decentralization, and remarks (p. 143):

> This practice makes it possible for researchers to occupy an important place in the selection process, and allows for a better distinction between elaboration of policies and the management of specific programs. More precisely, this gives the government authorities considerably more freedom, which in turn encourages them to devote more time to their responsibilities in the elaboration of policies.

All this suggests an intent to use the sponsorship of university research as an instrument for the achievement of governmentally defined goals and objectives. This intent contrasts with an attitude of mind which values the advancement of scholarship and science as an activity and an achievement valuable in themselves, or socially beneficial in ways which, precisely because innovation and discovery are of the essence, are unplannable and even unpredictable.

The instrumental view of research, or the desire to place science in harness, is also gaining vogue elsewhere than in Quebec. Quebec's policies for controlling the funding of research (which will be further examined in Section 2.4.2.3.3 below) are distinctive not because of their character, but because they have been developed to an extent not matched by other Canadian provinces. They also presage the establishment of a set of administrative structures which will give the state greater power of direction over the development of science and culture than is claimed elsewhere in Canada.

A similar view of research exists in Ottawa, though there it is more spottily in evidence, and more loosely translated into administrative machinery, than appears imminent in Quebec. Still, the attempt to define national priorities in research and to pursue them through remodelled granting councils, reflects the same mood as has inspired Quebec's definition of "a collective project" in research; and the research support policies of the two governments have been set on a collision course, in a way which one should not presume would be affected by an eventual change of Government in Quebec.

2.4.2.3 National Priorities in Research?

Over the past decade the federal government has shown a good deal of interest in developing a set of national priorities in research. Its motives have been partly to assist in economic development through the stimulus provided to technologically advanced industries, and partly to assist in policy formation in various areas of broad social concern or to contribute to cultural growth and the maturing of a sense of Canadian identity.

As early as 1973 federal officials and ministers began to see the granting councils, and through them the universities, as instruments of federal policy to achieve its objectives in research matters. This new federal perspective was developed at the same time as the provinces were becoming seriously concerned over the cost of supporting the universities and over the proliferation of graduate programming. Consequently, the Council of Ministers of Education, an interprovincial body for the exchange of information, challenged the direct relationship between university researchers and the granting councils. This caused, to say the least, alarm and dismay in the universities.

The intergovernmental dispute regarding research funding was patched up, in part through the creation of a federal-provincial consultative body, the Canadian Committee on Financing University Research (CCFUR). Thereafter the federal government proceeded in a more circumspect way to formulate and implement a set of priorities in the research field.

A major feature of federal policy has been the remodelling of the structure and roles of the granting councils. The councils have very recently been given substantially augmented budgets, with instructions to pursue a set of national priorities in research while continuing to perform their more traditional functions. The increase in federal research funding in the universities appears to be broadly acceptable to the provincial governments, except for Quebec. Quebec claims that all research funds currently allocated to provincially created or supported institutions, such as universities and hospitals, should be disbursed by the provincial government. Other provinces, which had earlier participated in formulating the stand now articulated, in an extreme version, by Quebec, have softened their position. There remains, however, some concern that "national priorities in research" may be assumed by some Ottawa officials to mean "the research priorities of the federal government". If university faculty and facilities are to become in any sense instruments of national policies, the provinces want a hand in defining what those policies are.

2.4.2.3.1 The MOSST initiative (1973) and the creation of CCFUR

Early in 1973 a senior official in the Ministry of State for Science and Technology (MOSST) prepared a position paper on the federal funding of university research. The paper proposed the solicitation and assessment of university research according to social needs, and among other things called for "the achievement of a well-balanced development of knowledge and of research capability in the various fields of science and technology". In this, the federal government's main agents would be the granting councils. The councils, the MOSST paper suggested, should see that research proposals were assessed not only on their scientific merit but also on their relevance to council programs aimed at creating a comprehensive research capability in Canada.

The paper also proposed that major research projects in areas of government priority be undertaken. This would involve, in some cases, creating "centres of research and development" established with provincial cooperation and participation. The centres might well be joint efforts not only in the sense that the federal government would seek the financial support of the provinces and perhaps of industry, but in the sense that the centres themselves might bring together researchers from university, industry, and government.

The MOSST paper was coolly received by the Federal-Provincial Relations Office and the Privy Council Office, but was sent anyway to the provinces by its principal author (May 1973). They were told it was under discussion in Ottawa.

The provinces, who had grown accustomed to discovering that matters revealed to them by Ottawa as "under discussion" had really already been settled, reacted vehemently. Under the direction of officials in Alberta and Quebec, a draft "provincial position paper" was prepared which, among other things, insisted that in funding major projects provincial or regional development plans should be respected; that grants should cover indirect costs so that such costs would no longer be borne by the institution and ultimately by the provincial government; that grants should not go to individuals but to the institutions which employed them (thus providing for realistic cost control including faculty release time); and that all federal monies destined for educational institutions be channelled through the provincial governments. These policies would apply equally to grants awarded through the granting councils and to contracts awarded by federal government departments. In the case of joint projects between industry and the universities, the provincial governments should be kept informed, and an intergovernmental coordinating body set up. Finally, where a concerted effort to promote research in areas of national priority was anticipated, the federal government should not create a string of new institutes, but should work through existing institutions -- presumably the universities for the most part -- with the agreement of the provincial authorities concerned.

By January 1974 the Council of Ministers of Education had agreed upon the text of a provincial position paper which it presented -- again, on a confidential basis, since it was responding to a supposedly confidential document -- to the federal government. The original draft had by this time been toned down somewhat. The text which was eventually communicated to Ottawa called for a partnership involving the two levels of government and the universities. In it, the provincial ministers of education now agreed to the continued payment of grants to individuals directly by federal agencies -- the granting councils and the operating departments -- provided the provincial government was notified, and also that both the employing institution and the provincial government be informed when a federal agency received an application for a grant over $50,000. In other respects, except for one, the final version of the provincial position paper followed the earlier draft, already summarized.

The innovation contained in the final draft of the paper presented by the Council of Ministers of Education (CMEC) was made public in a press release (January 11, 1974) which read in part:

> ...it is important that the provinces preserve their autonomy in an area as crucial as research and higher education....
>
> The ministers thought it important that a partnership be achieved among the federal government, the provincial governments and the universities in the matter of research. Such a partnership is rooted in the fundamental premise that all parties involved will recognize:
>
> (a) That there are areas of federal responsibility delineated by the constitution and, therefore, federal authorities may pursue research related to these areas in conjunction with universities; but notification and consultation should take place with provincial authorities in order to assure a balance of activities within a university and between universities within a province;
>
> (b) That there are areas of joint federal/provincial responsibility and that research related to these areas should be a matter of joint consultation and decision making, to protect the balance between and within universities, and to secure a provincial input and active participation in the determination of priorities;
>
> (c) That there are areas, such as education and natural resources, which are constitutionally the responsibility of the provinces and that major federal research programs related to these areas should not take place without prior consultation

> and the express consent of the provinces concerned.
>
> Another important element of the ministers' position is that provincial policies for higher education be respected, and that the development plans of the universities as approved by the provincial authorities be also respected, when federal funds are made available for research.

Meanwhile, although both the MOSST paper and the provincial response were confidential (except of course for the press release, all significant sections of which have been quoted), many if not all senior university administrators knew what was going on. Copies of the documents had fallen into the hands of one of the graduate deans, who circulated them to his counterparts in many universities. Consequently within four days of the publication of the CMEC press release, a deputation of university presidents and officers of the AUCC met with the Prime Minister and the Secretary of State to support the federal presence in matters related to higher education, and particularly research. The following month (February 1974) the AUCC presented a public submission to the Secretary of State which was ostensibly a university response to the CMEC press release. In reality the AUCC submission was a response to the provincial position paper, or even to the earlier drafts of this document, which had challenged legitimacy of the federal role in directly supporting university research. The AUCC brief read in part:

> ...the universities wish to deal directly with the federal government just as they wish to relate to provincial and local authorities, to foundations and international agencies in dealing with matters which concern them....The universities must have direct access to the federal government and its agencies in the discussion of research policies and funding. Arrangements for the approval of research projects should be kept as direct and simple as possible....members of faculty should have direct access to granting councils, both federal and provincial.

To a person with any understanding of the traditional role of the granting councils and their importance to university faculty and to the universities as institutions -- as well as to the quality of scholarship and science in Canada -- the reasons for the universities' alarm will be self-evident. The direct relationship between university researchers and the granting councils remains of vital importance today.

* * *

The significance of the gaffe by MOSST, and of the inappropriate provincial response -- for the division of the research funding function according to categories of constitutional jurisdiction is clearly unworkable -- is that the episode revealed a number of issues relating to research funding which are of legitimate provincial concern. Our recommendations presented in Chapters III and IV, will take account of these concerns. In the meantime, the sequel to the MOSST initiative deserves our attention.

The most tangible consequence of the whole affair was establishment of the Canadian Committee on the Financing of University Research, an intergovernmental body for the exchange of information and for making recommendations on policies, programs, and procedures affecting research in universities. The membership of the CCFUR includes a small number of university administrators, but they sit on the Committee (together with some provincial deputy ministers and other officials) as delegates of the provinces rather than as official representatives of the university community or any organization such as the AUCC. On the federal side there are officials of several departments including the Secretary of State's Department and MOSST, and also senior officers of the granting councils.

It is doubtful that the CCFUR will become a very effective agency for the intergovernmental coordination of university research funding policies. It has no mandate to select national priorities -- national, in the sense of being supported both by the federal government and by the provinces -- or to dovetail major federal projects with provincial plans for university development and specialization. It is not a working body of this sort; for one thing, it has no staff (its staff functions being fulfilled by the secretariat of the CMEC) and it meets only three times a year. So far its major project has been to sponsor a study on the costs of university research, which was conducted by the Canadian Association of University Business Officers (CAUBO). It has also been instrumental in seeing to the collection of data on research funding by the federal and the provincial governments.

It appears, then, that the CCFUR has started to generate or gather a certain amount of information which may be relevant to the formulation of research policies. It has also served as a forum for the discussion of federal policies relating to the funding of university research, including the plans of the granting councils. In other words, it has so far served as a sounding-board for some federal policies, and as a clearing house for information on matters related to financing university research. There are no indications that it is likely to go beyond these roles. Neither the federal government nor the provinces are likely to want to confer any policy-making responsibilities upon an agency over which they do not retain ultimate control.

2.4.2.3.2 Remodelling the role of the granting councils

Minister of State for Science and Technology Hugh Faulkner (1977: 6257):

> Is the main purpose [of university research] to push back the frontiers of knowledge? Is it to train graduate students to be competent researchers? Should it be helping to solve problems posed to it by governments or industry?...I believe the answer is all three. My perception is, however, that there has been an imbalance in favour of the first two at the expense of the third. I have reached the conclusion that the universities must begin moving more of their research and enquiry into the mainstream of effort aimed at understanding and solving our pressing national problems.
>
> . . . .
>
> The laissez faire attitude to the support of university research has a much narrower validity than it once had. What this means is that the time has come for a more activist approach by the granting councils to the determination of research priorities and to the creation of new policies and programs which will give university research an even greater opportunity to respond to national needs. Bill C-26 is important because it creates a new and dynamic framework in which this vital, evolutionary change in the direction of [the granting] councils can take place.

Bill C-26, enacted in June 1977 as the Government Organization (Scientific Activities) Act, was proclaimed in 1978. It is principally known for its creation of the Natural Sciences and Engineering Research Council and the

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Social Sciences and Humanities Research Council, to take over the research support functions until then performed by the National Research Council and the Canada Council. The administrative structures, however, are less important than the policy changes signalled by the appearance of the two new councils.

Some of the intended changes in policy are summed up in Mr. Faulkner's declaration, quoted above. Others include (Faulkner, 1976 and 1977):

--coordination, through an Inter-Council Coordinating Committee (ICCC), of the policies, programs, and practices of the councils, such that council activities reflect national objectives and priorities, support "a balanced development of knowledge and of research capability", and ensure "coverage of all recognized disciplines";

--the concentration of research capabilities on a regionally balanced basis, through the creation of "centres of specialization in different disciplines or groups of disciplines" and by means of "an even more selective process" of allocating research funds "which will allow those relatively few individuals whose research is of recognized quality, at least nationally and possibly internationally...to be supported well, perhaps better than they have been in the past";

--the fostering of interdisciplinary research; and

--additional funding of those council programs relating to a regional balance of scientific capability, national problem areas, and the support of interdisciplinary research. (The Minister also noted, however: "I do not want to leave the impression that the councils will be devoting all their resources to specific issues; the support of free inquiry has a firm place in council objectives and...will continue to have that place.")

Each of the councils is a public corporation, an agent of the crown, reporting to Parliament through a designated minister who is responsible to Parliament for the budget and administration of the council concerned. Each council controls its own operations and may parcel out its budget as it sees fit among its several programs. But the councils' autonomy is limited by the fact that they are wholly dependent upon annual appropriations from Parliament. (In this respect their position contrasts sharply with that of the Alberta Heritage Foundation for Medical Research.) Although the councils are under no statutory obligation to respect hints or even policy pronouncements made by their respective ministers, nor is the government under any obligation, other than a moral and political one, to ask Parliament to vote them any money. For this reason they may be presumed to be, in more than the purely formal sense, agents of the crown.

As we have seen, the crown -- especially, it seems, the Ministry of State for Science and Technology -- has an increasingly clear idea of what the granting councils should be doing. They have been charged with the responsibility of "translating national issues into research objectives". (Faulkner, 1977: 6275. Also, from the same source: "The challenge, as I say, will be for the councils to come up with policies and programs which strike the right note. I would add that [the] universities themselves may also find their research policies have to be re-examined in light of the changing directions of council programs.")

The changing directions of council programs are indicated by the recent appearance of strategic grants and by the apparent intent to expand such grants over the next five years. "Strategic grants" is the term used by these two councils for those grants which are made in areas designated by them as having special priority, in accordance with perceived national needs; MRC "subject research development grants" are basically similar.

Strategic grants are made to researchers individually or in groups, being in this respect similar to grants in what I have called the "standard form". But there are a number of differences: strategic grants are likely to be on a larger scale; a higher proportion of them support team research than is the case with operating grants; in the relevant SSHRC and MRC programs the coverage (costs met) is more generous; and -- this is the key item -- applications are invited within advertised themes, not unlike "unsolicited proposals" for contracts awarded by government departments.

The NSERC's strategic grants program is officially described as follows (Canada, NSERC, 1979b: 17-18):

> This relatively new program was initiated by NRC with new funds in July of 1977 and has given university

researchers an added opportunity to apply their research experience to problems relating to specific areas of national concern. NRC identified three such areas in 1977-78, namely Energy, Environmental Toxicology and Oceans, and NSERC has added Communications and Food/Agriculture for the 1979-80 competition. This program constitutes the core of NSERC's targeted research effort.

Council has used supplementary funds provided by the government, plus funds released by the termination of the Negotiated Development Grants program, to provide significant growth in the Strategic Grants area. The 1977-78 budget of $2.3 million was increased to $7.3 million in 1978-79 and will increase further to at least $10.6 million in the current year.

Applications for Strategic Grants are reviewed by panels of peers with university, industry or government research backgrounds. The Council has also commenced a series of university/government/industry workshops to improve the focus of this relatively new initiative. It can be expected that in the future there will be increased attention paid to major interdisciplinary efforts aimed at solving key problems identified by such workshops.

The MRC and the SSHRC have also recently initiated strategic grants programs, each council having selected a single theme for initial attention. Between them, though apparently without the guidance of the Inter-Council Coordinating Committee, the councils have made Canada a world leader in cradle-to-the-grave research, as the MRC has shown special interest in perinatology while the SSHRC has made "population aging" its area of priority. Both councils expect to announce additional themes for strategic grants in the near future.

University researchers have responded enthusiastically to the NSERC strategic grants program. The program generated 618 new applications for the 1979/80 competition, involving requests for about $24 million -- about twice the sum which will actually be available. Although it is hard to predict the eventual level of response to the offer of strategic grants by MRC and SSHRC, special encouragement is provided by the provision of salary support for principal investigators. In the case of SSHRC, a number of forms of grant will support research in the areas selected (Canada, SSHRC, 1979b: 17-18).

The third major group of programs concerns strategic grants for research on themes of national importance. Many of the independent research projects, especially team projects supported by negotiated grants, deal with Canadian problems. However, until the Treasury Board approved additional funding of $2 million for 1979-1980, SSHRC had no programs specifically directed to the study of themes of national importance. The extra funds will finance new work on an initial theme, population aging, additional work on the Dictionary of Canadian Biography, additions to library collections of national significance (the latter two programs are described in this report as "concerted action grants" in the section on "grants to institutions") and broad consultations to identify further priority themes. Programs in support of social sciences and humanities research on the theme of population aging will include:

i. Special Research Grants - These may include paying for the researchers' time (unlike regular research grants).

ii. Post-doctoral Awards - These should aid young scholars to establish themselves in this new field.

iii. Re-orientation Grants - Here the idea is to help established scholars to redirect their studies.

iv. Research Workshops - The purpose is to aid a broad range of scholars and students to familiarize themselves with the field of population aging.

v. Institutional Grants - These would aid universities or other institutions which may wish to organize a special team effort in some aspect of the overall theme of aging.

The strategic grants programs are given high priority in the five year plans presented by SSHRC and NSERC in 1979. Both councils emphasize that the support of discovery-oriented or "free" research is basic to all other programs of research support, and that funds must not be diverted from the basic programs to swell the allotment given to strategic grants; but both provide for rather modest growth in regular operating grants and a sharp increase in the strategic grants. In the case of NSERC, a tripling of "targeted research programs" is proposed, compared with an increase of between 30 and 45 per cent for "free research programs" (all figures in constant dollars). The SSHRC, starting with a smaller base for strategic grants, is looking forward to even larger percentage increases in this item. NSERC expects that by 1984/85, between 18 and 22 per cent of its grants budget (here defined to exclude fellowships etc.) will be taken up in strategic grants including the equipment component of these grants (Canada, NSERC, 1979a: 78, 101); while the corresponding figure contemplated by SSHRC is 16 or -- it hopes -- 35 to 38 per cent (Canada, SSHRC, 1979b: Appendix G).

In general, the tone of the five year plans prepared by SSHRC and NSERC suggests that the councils antennae are reasonably efficient receptors of official signals, such as those emanating from the Minister of State for Science and Technology as he guided Bill C-26 through Parliament. The councils are far from abandoning their traditional role in the support of university research; indeed, the plans suggest that they will continue to give priority to the development of basic research resources (personnel and equipment) and the support of independent research (Canada, NSERC, 1979a: 56-9; and Canada, SSHRC, 1979b: 25-7). But they also underline their attentiveness to specifically Canadian needs and to "matters of national concern". In the case of NSERC, this is expected to involve much closer ties with, and attention to, business and industry.

None of this should occasion suprise, though understandably it has occasioned some concern in the universities. Some observers are worried that a future program of financial stringency may bite into council budgets and may cause the pruning back of some of the traditional programs, while the areas selected for accelerated development through strategic grants go forward at the rates contemplated by the councils in their five year plans. A commitment to expand strategic grants does involve this danger. And yet the councils could scarcely do otherwise than to respond to the expressed wishes of their sole supplier of funds by expressing their enthusiasm for the new role, as long as their capacity to perform the old role is unimpaired.

To put it this way is to put on a bold face, and perhaps that is what one must do. Politically, there is probably little choice. But there is also, politically, a developing situation of great delicacy both for the councils and for the universities. The councils are proclaiming their willingness to be instruments of federal policy and are involving the universities with them in the pursuit of national goals. The councils' strategic grants are not unlike the unsolicited contracts which are awarded by operating departments. The federal government is, through the councils, enlisting the help of faculty in provincially-supported and in most cases provicially-created institutions, to work in areas identified as having special priority. Researchers' salaries, and many of the indirect costs associated with research, are paid for out of general university revenues. True, the federal government contributes indirectly to those revenues through its cash grants to provincial governments in support of post-secondary education. But when the provinces see the federal fiscal transfers as unconditional, and resent them if they are not, then trouble may be brewing and the universities may suffer from it. Already the provincial claims have been put forcibly by Quebec.

2.4.2.3.3 Quebec's white paper on research, 1980

There is no need to summarize here Quebec's white paper on scientific research, published in April 1980 under the title A Collective Project. It will suffice merely to note that the paper spells out a comprehensive policy for promoting research in government, industry, and educational institutions (CEGEPs and universities); that it proposes machinery for defining and implementing a research development strategy; and that it accordingly wishes to "repatriate" certain powers in order to accomplish its aims. These constitutional demands, which are formulated within the larger project for sovereignty-association, are set out below in a number of excerpts from the concluding chapter of the white paper. The excerpts speak for themselves, though two initial observations are perhaps apposite.

—The constitutional position expressed in the document is reminiscent in some respects of the provincial position paper adopted by the Council of Ministers of Education in January 1974. The white paper is in this sense an update and extension of a position taken before the election of a government committed to independence, a position earlier endorsed by the education ministers of all the other provinces but since tacitly abandoned by all provinces but Quebec.

--The constitutional program of the Quebec Liberal

> Party, a program whose importance is augmented by the electorate's rejection of sovereignty-association in the May 1980 referendum, contains proposals regarding the funding of research in the universities. These proposals are noticeably more sympathetic to the sponsorship of university research by the federal government as well as by other agencies; but they are also emphatic about the need for intergovernmental consultation on research (as other) matters. Indeed, according to the Quebec Liberal Party proposals, the budgets of the granting councils should be ratified by the provinces through a new institution, the Federal Council (Quebec Liberal Party, 1980: 78-9). More on this in Sections 4.1.3 and 4.3.1, below.

Now for the excerpts from the white paper (Quebec, [Ministre d'état au développement culturel], 1980: 192-201):

> Above all else, a true political dialogue must be instituted. Indeed, there is no "spending power" which can justify the federal government's unilaterally dictating policy on scientific development or directing it according to objectives and priorities which are not necessarily those of Québec society.... This political dialogue must centre around certain matters relative to imperative adjustments and patriations. These are the first steps to be taken to correct the operational anomalies and disparities which cannot be allowed to go on.
>
> As a first adjustment, Québec must receive its fair share of all federal resources allocated to scientific research and of the ensuing economic, social and cultural benefits. The distribution of federal resources allocated to scientific and technical development must therefore be reviewed. These resources are known to be impressive and, even to many orthodox federalists, their massive concentration in Ontario borders on the scandalous....
>
> On this first point, simply a matter of "equity", Québec's overall position consists essentially in claiming repayment of the money owing to it for too long.... What will...be insisted on is transfers of funds or of tax points; both the government and the scientific community in Québec will know what to do with them. Now that the collective process of elaborating a science

policy is definitely under way, it is hard to see how we can limit ourselves to continuing to take part in programs which have for so long -- and to so great an extent -- been prepared and developed for others.

. . . .

The university research sector must be regarded as a special case. To put it succinctly -- and this is the second imperative adjustment -- the gouvernement du Québec intends to reassert its exclusive jurisdiction over both the university institutions and their activities. Nothing authorizes the federal government to pay direct subsidies to university research or to the university training of a scientific work force. Existing practices very often bear a strange resemblance to attempts to bribe the universities and institute a sort of "double patronage" system of which Québec's scientific development has too long borne the cost. The government remains true to Québec's traditional stand on this matter, and is insisting on complete partriation of all programs for grants to university research and for university training of manpower....

A third major area where Québec is making claims concerns research which is an integral part of the activity sectors over which Québec's jurisdiction is laid down by the Constitution, for instance, natural resources, forests, mines, fishing, argriculture, energy, the environment, health, and our heritage. In this regard, the government's position is essentially the same as it is in matters of university research: Québec must have full exclusive jurisdiction in matters of scientific research, in all activity sectors under its authority.

Fourthly, and finally, the rules governing Québec's international presence in matters of scientific and technological development must be changed.

. . . .

In making these claims, the Québec government has no intention of turning its back on those efforts at joint federal-provincial and interprovincial action which have been timidly undertaken here and there; even less does Québec intend to withdraw from the pan-Canadian scientific research circuit and "go it alone". Rather, it is resolved to increase and improve its capacity to collaborate and participate, which, here as elsewhere, presupposes a clear awareness of its objectives and real control over its resources. Québec is under no illusion, however, as to the possibility, under the existing regime, of obtaining what it regards as a minimum of change, albeit an insufficient minimum. For this reason, it has no intention of getting bogged down in some interminable revision process which might well sidetrack it from its basic political plans. True, the government is insisting, firmly and resolutely, on the changes mentioned; it will even welcome any reasonable offers. There is no question, however, in return for these offers, of shelving the broader demands whose satisfaction is vital for the future of scientific development in Québec.

2.4.3 SPONSORED RESEARCH: CONTRIBUTIONS TO FACULTY SALARIES AND UNIVERSITY OVERHEAD COSTS

In 1970 the federal Department of Supply and Services (DSS) negotiated an agreement with the AUCC on "Contracting with Universities for Research and Development Work". The agreement is really a federal policy statement made after consultation with the universities through the AUCC, and broadly speaking is still in force. It is set out in a DSS memorandum of September 14, 1970 which stipulates the financial arrangements to be written into federal contracts. These arrangements became conventional also for provincial government and private sector contracts. Although there are contracts which depart from the conventional form or conditions, a certain presumption exists in favour of following the 1970 DSS policy.

The memorandum reads in part:

> ...all research and development work carried out by Universities or Colleges on contract to the Canadian Government will be priced at direct cost plus a contribution to overhead at a maximum take-out rate of 30% of specific direct cost elements [materials and supplies; salaries and wages including professional salaries]. For off-campus work, the maximum overhead rate will be 15%.

These "maxima" are in fact the standard rates. Travel expenses are not included in the "specific direct cost elements" on which the 30 per cent surcharge for contribution to overhead is calculated, but a 2 per cent administration charge on travel expenses is allowed. Apparatus and equipment purchased specifically for the project remain the property of the crown and are subject to crown asset disposal procedures.

The range of expenses covered by research grants, as the earlier discussion has made clear, is usually narrower than is the case with the "typical" contract. Indirect costs are borne by the university, and the main programs of the granting councils make no contribution for faculty time. Exceptions to this practice have been noted in the preceding sections.

It is obvious that contract research brings financial resources to the university which most grants do not. Moreover, depending on university regulations regarding contract work undertaken independently by staff, or rules and "understandings" regarding external sources of income, contract research may be lucrative for individual members of faculty. There are thus incentives for faculty to seek, and indeed for the university to encourage, contract research over research which is subsidized by grants.

Although I do not wish to suggest that contract research is inherently uninteresting in scholarly or scientific terms, or typically offers little support to the teaching function, the discrepancy in cost coverage between grants and contracts does mean than non-scientific, non-scholarly, and non-instructional factors may determine research priorities in the universities. This conflicts with the goal of achieving excellence; indeed, it is antithetical to the idea of the university.

2.4.3.1 Research Funds and University Salaries

If many of Canada's universities are facing a period of declining enrolments, it is of obvious interest to discover whether the external sponsorship of research can add flexibility to university staffing. It may do so in two ways: (1) through providing a means of carrying existing staff who may become partially or wholly redundant for instructional purposes, and (2) through bringing into the university new staff who could not otherwise be hired.

The need for stimulus from fresh recruits explains why the programs being initiated by the granting councils, to bring young graduates into the universities on research appointments, are vitally important for the universities as institutions (as well as for other, perhaps even more important, reasons).

This section, however, addresses a different issue: the contribution of research funding -- mainly contracts -- to university salaries. Obviously, given the relatively small percentage of operating income deriving from the sponsorship of research, the contribution to university salaries is quite small even in the most research-intensive universities. However, there are interesting data which show that the allocation of sponsored research income to different objects of expenditure within the university varies widely by institution (see Table II-13). I cannot say whether the lesson to be drawn from Table II-13 is:

(a) that the research enterprise is qualitatively different in various institutions, and generalizations about the impact of sponsored research on university finances are not worth making; or

(b) that some universities have learned to use external research support more effectively, or in different ways than other universities have, the implication being that there are opportunities for some universities to make fuller, better, or different, use of external research support; or

(c) that some universities are readier than others to give academic rank or title to non-teaching research personnel, and that some universities classify as "academic" employees who in other universitites are not so classified -- in which the case the lack of pattern in Table II-13 is due simply to differences in the definition of categories.

This is a puzzle, and I cannot resolve it.

2.4.4 IMPACT OF RESEARCH FUNDS ON THE DEVELOPMENT OF GRADUATE PROGRAMS

It is well known that, especially in the natural sciences and engineering, a large proportion of many research grants is expended in the support of graduate students who are hired as research assistants. These students usually write their theses on some aspect of the research in which their supervisors are engaged. Even in cases where the student is not supported out of his supervisor's grant, the

TABLE II-13

SALARY EXPENDITURES FROM SPONSORED RESEARCH FUND, PERCENTAGES, SELECTED UNIVERSITIES, 1978/79

	Salary expenditures as a percentage of all expenditures from sponsored research fund			
	Academic Ranks (1)	Other Instr. and research (2)	Other salaries and wages (3)	Total salaries and benefits (4)
U. of Alberta	28.4	6.7	23.7	61.6
U. of Br. Columbia	18.8	10.7	27.5	59.9
Calgary	8.3	14.3	39.2	64.2
Carleton	2.8	32.8	19.3	56.7
Concordia	.0	38.0	5.8	47.5
Dalhousie	.0	3.1	40.9	48.1
Guelph	14.2	7.8	27.9	54.9
Laval	7.5	29.0	14.7	55.0
U. of Manitoba	6.3	23.1	22.8	54.4
McGill	.0	42.0	19.2	65.4
McMaster	7.5	12.3	23.7	45.9
Memorial	6.2	2.6	46.6	57.
U. de Montréal	15.5	9.9	24.8	54.6
U. of New Brunswick	28.8	0.8	17.9	52.5
Ottawa	25.9	15.1	19.2	64.2
Qué.-Chicoutimi	45.9	.0	9.7	58.3
Qué.-Montréal	.0	40.5	17.7	61.4
Qué.-Trois Riv.	.0	26.5	15.0	43.7
Queen's	8.3	30.4	16.7	57.9
Regina	4.6	11.5	18.2	35.3
U. of Saskatchewan	3.6	57.5	2.1	66.1
Sherbrooke	10.6	26.0	16.6	56.3
Simon Fraser	16.9	49.9	.0	69.1
Toronto	5.4	29.7	19.7	58.2
Victoria	12.0	55.3	2.2	72.2
U. of W. Ontario	5.7	28.5	22.8	60.4
Windsor	.0	50.9	.0	52.8
York	4.7	24.6	23.6	55.6

Notes: (1) This table includes data only on those institutions receiving more than $1 million sponsored research income in 1978/79. As in other tables, affiliated institutions are grouped together (Universite de Montreal includes also Ecole Polytechnique and Ecole des Hautes Etudes Commeriales; University of Toronto includes also the Ontario Institute for Studies in Education).

(2) Columns (1), (2), and (3) do not sum to column (4), because only column (4) includes benefits.

Source: AUCC: Financial Statistics of Universities and Colleges 1978-1979 ("Prepared by Statistics Canada for the Canadian Association of University Business Officers [CAUBO]).

conduct of research which is subsidized by external funds is essential to the development of graduate programs in most or all disciplines outside the humanities and social sciences.

NSERC estimates that in 1977/78 there were approximately 1950 students who received support indirectly through its operating grants and strategic grants programs (Table II-14). This figure is additional to the 1465 students who held graduate awards; altogether, an estimated 3415 students were supported. This is one half the number of eligible students (only Canadian citizens and landed immigrants are eligible for support, whether direct or indirect).

The NSERC estimate of the number of students supported through operating grants is a minimum figure which is based on financial reports by principal investigators. Grantees did not report the number of students they hired as research assistants, but they did indicate how the funds they received were spent. The total amount used for research assistance provided by graduate students was divided by the maximum permissible support level; in this way NSERC calculated the number of students who could have been supported at maximum rates, if they did not receive any part of their support from other sources. In fact, however, many graduate students are supported through a combination of different sources (say, in part through teaching assistantships); thus the NSERC funds probably contributed to the support of rather more than 2000 students.

The number of graduate students supported, directly or indirectly, by NRC fell sharply during the 1970's. This is shown in Table II-14. However, the recent improvement in the budgetary prospects of NSERC, and the heavy emphasis on manpower training in its five year plan, should reverse this trend.

One reason the matter is important in the context of a study on university finance is that the support of students may have a decided impact on the availability of funds from the universities' major source of financial support, the general provincial operating grant. Whether or not this is so will depend on the method used for allocating the general provincial subsidy among institutions; where the technique used is sensitive to enrolments, especially if graduate student enrolments are weighted more heavily than undergraduate enrolments, a university's income may be indirectly affected by the support available to graduate students through fellowships and the sponsorship of research.

TABLE II-14

NSERC SUPPORT OF FULL-TIME GRADUATE STUDENTS
1970/71 to 1978/79

Year	Awards held (1)	Estimated number of students supported under grants (2)	Estimated total number of students supported (3)	Graduate student enrolment in disciplines supported by NSERC: Canadian and landed immigrant (4)	Graduate student enrolment in disciplines supported by NSERC: Total including foreign (5)	Per cent of Canadian and landed immigrant graduate student enrolment supported by NSERC (6)
1970/71	2340	3110	5450	NA	10971	NA
1971/72	2103	2959	5062	NA	10308	NA
1972/73	1989	2686	4675	7838	9326	60
1973/74	1735	2551	4286	7476	9068	57
1974/75	1702	2491	4193	7378	9035	57
1975/76	1735	2051	3786	7758	9836	49
1976/77	1742	2060	3802	7752	10149	49
1977/78	1627	1950	3577	7304	9849	49
1978/79	1465	1950	3415	6875	9400	50

Source: NSERC.

The size of a given graduate program -- we assume for the sake of argument that the program in question is already in operation, or has been approved -- depends upon the interplay of three major factors. One is the extent of student demand, or the number of high-quality applications. This will depend partly on employment prospects for the period after graduation. A second factor is the number of places available in the institution or department, and this in turn will depend inter alia on there being adequate facilities and equipment. A third factor is the availability of student support, whether directly through fellowships, or indirectly in the form of teaching or research assistantships. (Naturally, the admissions policies of the institution are also of key importance; but to a large extent these policies reflect the three other factors just noted.) The activities of the granting councils and of other agencies which support university research affect all three factors: the availability of employment, of equipment, and of student support. The councils' programs, and the level at which they themselves are funded, are thus absolutely critical to the development and general health of graduate studies and research training in the universities.

These comments apply with much greater force in the natural sciences and engineering than they do in the humanities and social sciences. In the latter disciplines it is not conventional in most universities to support all graduate students; the availability of equipment and facilities is much less of a limiting factor; and students generally develop research interests which are much less closely bound up in the work of their supervisors than in the natural sciences and engineering. By contrast, the prospects for appropriate employment after completion of a graduate degree is just as important a factor in the social sciences and humanities as it is in other disciplines. The bleakness of the situation in this regard over the past few years has had a seriously depressing effect on the readiness of the most able undergraduates to continue on into graduate studies. This gives great importance to the plans of SSHRC, as well as of NSERC, to develop new programs to launch young doctoral graduates on research careers.

2.4.5 SPONSORED RESEARCH FUNDS AND EXCELLENCE IN UNDERGRADUATE TEACHING

The contribution of research funding to the support of graduate studies is widely recognized, but it would be wrong to acknowledge this symbiosis while ignoring the relationship between research and undergraduate teaching. As has been emphasized time and again in this report, universities are places of experimentation and innovation. Research is an activity which cautions its practitioners against the acceptance of orthodoxy, and schools them in the exercise of logical thinking and the critical use of evidence. The attitudes and habits which research engenders and reinforces are thus essential to the character of university education at all levels. In this sense undergraduate teaching, just as much as instruction at the graduate level, depends upon the conduct of research.

It is easy to be cynical about this. Much research is on recondite subjects, and the activity itself involves much tedium as well as the excitement of discovery. Faculty may -- some do -- neglect their students to crank out publications. But to acknowledge these things is to admit the danger of making categorical statements about research and researchers, about teaching and teachers.

Research involves reflective enquiry as well as digging at the frontier; its practice cannot properly be contrasted, as a strong-minded Canadian man of letters has recently done with éclat, with the dialectical processes which train the mind and which have been said to be the glory of the British and the more traditional Canadian universities. It is true that almost mindless fact-grubbing is sometimes called research, and that some researchers are plodding and uninventive. They are the bane of their students, graduate as well as undergraduate. But conversely, it is as true of undergraduate teaching as it is of the graduate enterprise, that in the absence of research activity, instruction is unleavened dough.

2.5 GIFTS AND ENDOWMENTS

Gifts, and investment income from endowments, are not a category entirely distinct from sponsored research income. In 1978/79 Canadian universities received $202 million in gifts and non-government grants, plus investment income. Of this, $84 million or 42 per cent, was either earmarked for research purposes or was transferred by the universities from their trust and endowment funds to their sponsored research funds. This presents us with a problem in presenting the data, since we naturally wish to avoid double-counting, but we also wish to acknowledge the full contribution of gifts and endowments to university finances.

Our solution is to present both figures. In Table II-3 the column entitled "Gifts, etc." includes gifts and non-government grants plus investment income exclusive of the sums from these sources used to support research. A fuller picture is given in Table II-15, which gives both a gross figure for "gifts, etc." (includes those used for the support of research), and a net figure.

As one would expect, gifts and endowments income is distributed among the universities very unequally, with eight institutions receiving ten per cent or more of their operating funds from this source, while 11 received less than one per cent. Three received more than $1000 per FTE student, and a further ten received between $500 and $1000. Fifteen received less than $100.

Obviously, those universities which obtained a relatively large income from private sources had an advantage over the others. The advantage is probably greater than a simple comparison of gifts-per-FTE-student would show, since private funds may sometimes be used for purposes that funds from other sources -- notably, the general provincial operating grant -- may not. For example, in Ontario and perhaps in some other provinces, provincial grants may not be used for scholarships and fellowships. When gifts and investment income are used for this purpose, it can give the university a distinct advantage in recruiting good students. This can be particularly important, financially speaking, at the graduate level, if the province funds its universities by an enrolment-based formula (see Section 2.7.1.2, below) in which graduate students are given a greater weight than undergraduates.

This report does not deal with the financing of capital expenditures, but not even the briefest comment on the role of gifts and endowments in university finance can exclude reference to the importance of private funding of libraries, residences, sports facilities, and other buildings. In 1978/79 12 per cent of capital funds derived from gifts and investment income, compared with 6.5 per cent in the operating budget. Private benefactions have been vital to the growth, and to the character, of many of Canada's universi-

TABLE II-15

GIFTS, NON-GOVERNMENT GRANTS, AND INVESTMENT INCOME OF CANADIAN UNIVERSITIES 1978/79

University	Percentages		$ per FTE student				
	Gifts, etc., including for research (1)	Gifts, etc. excluding for research (2)	0 to 99 (3)	100 to 299 (4)	300 to 499 (5)	500 to 999 (6)	More than 1000 (7)
Mt. Allison	15.2	15.2				x	
Toronto	15.1	8.4					x
McGill	13.8	8.2					x
Queen's	12.7	9.5				x	
Dalhousie	12.4	8.6					x
McMaster	11.2	4.3				x	
Nipissing	10.3	10.3			x		
U. of Sask.	10.3	8.1				x	
U. of W. Ont.	8.9	3.0				x	
U. of B.C.	8.4	5.1				x	
Winnipeg	7.8	7.8		x			
Manitoba	7.8	1.9				x	
Alberta	7.2	4.8				x	
Ottawa	6.3	3.9			x		
Calgary	6.0	4.0			x		
Lethbridge	5.7	5.7			x		
Guelph	5.6	3.8				x	
Sherbrooke	5.0	.9			x		
Acadia	4.7	4.2		x			
Trent	4.7	4.5		x			
Wilf. Laurier	4.5	4.0		x			
Waterloo	4.3	2.3		x			
Laurentian	4.2	3.8		x			
Bishop's	3.9	3.7		x			
Carleton	3.7	2.3		x			
Regina	3.5	3.1		x			

TABLE II-15 (concluded)

University	Percentages		$ per FTE student				
	Gifts, etc., including for research (1)	Gifts, etc. excluding for research (2)	0 to 99 (3)	100 to 299 (4)	300 to 499 (5)	500 to 999 (6)	More than 1000 (7)
U. de Montreal	3.4	0.7		x			
Lakehead	3.3	3.0		x			
Victoria	3.3	2.9		x			
York	3.1	2.1		x			
U. of N.B.	3.0	3.0		x			
Brandon	2.9	2.8		x			
Laval	2.8	1.1		x			
Concordia	2.7	1.2		x			
Simon Fraser	2.5	1.8		x			
Windsor	2.4	2.0		x			
St. F. Xavier	2.2	2.2	x				
Brock	2.2	2.0		x			
St. Mary's	1.6	1.6	x				
Moncton	1.4	1.2	x				
Ryerson	1.4	1.4	x				
C.E.U.O.Q.	1.0	1.0	x				
Memorial	.8	.8	x				
Que.-Chicoutimi	.8	–	x				
Que.-Montreal	.5	–	x				
U.P.E.I.	.3	.3	x				
Mt.St. Vincent	.2	.2	x				
Que.-Tr. River	.1	.1	x				
Cape Breton	–	–	x				
Hearst	–	–	x				
Que.-Rimouski	–	–	x				
St. Thomas	–	–	[illegible]				
Ste. Anne	–	–					

Source: Calculated from: AUCC: Financial Statistics of Universities and Colleges 1978-1979 ("Prepared by Statistics Canada for the Canadian Association of University Business Officers [CAUBO]"), and Statistics Canada (for enrolment data).

ties, and have endowed them with facilities which could not possibly have been obtained from public funding.

2.6 GOVERNMENTAL FEES-FOR-SERVICE

It is common to identify three aspects of the role of the university: teaching, research, and public service. The last of these items reads oddly, as if teaching and research were not themselves the main services which universities offer to society and to the public. Perhaps, though, I am just being difficult.

The term "public service", at least in the university context, probably owes its coinage to the American tradition of land-grant universities which were set up to serve, not only the needs of an abstract entity like "society" nor just the relatively few individuals who could afford university studies, but a wider public who, in a pioneer society, had no access to the cultural amenities of large cities. Public service was a largely altruistic form of action consisting partly in extension work or "outreach" for the benefit of a scattered population. Another aspect was the provision of technical assistance to develop agricultural practices suited to local conditions, or otherwise to meet the particular needs of the local population.

These functions of course remain important, but today public service is also rendered in the form of practical work which is incorporated into professional training, as in the case of medicine and rehabilitation medicine (clinical services), teaching, or law (legal aid). In some provinces the public authorities have assumed a special responsibility for seeing to the provision of university-rendered public service activities of this sort. The province may make specific-purpose grants to compensate the universities for their expenses, or may offer encouragement through a fee-for-service arrangement.

I have no data on governmental fees-for-service, but there is no reason to suppose them to be of much importance in university finance, except conceivably in the case of a very few institutions.

The main purpose in mentioning governmental fees-for-service in this report is that they have theoretical or potential importance as a more general financing technique. Where fees-for-service are available, universities seem avid enough to snap up the financial benefits they provide and to negotiate for more or better. There is an example we have already looked at: in a sense contract research is a fee-for-service deal. And if extension work is financed on this basis, the same idea could easily be applied to certain manpower training programs but not to general education, to undergraduate studies but not to graduate work, to chemistry but not to philosophy, and so forth. With the application of such a financing technique, public service, initially altruistic, would accomplish the commercialization of the university.

2.7 PROVINCIAL OPERATING GRANTS

The most obvious thing to be said about the operating grants from provincial governments is that they outweigh all other sources of university income put together. This has been so since 1967/68, the year in which the federal government withdrew its general-purpose subsidies to universities and instituted instead a program of financial assistance to the provincial governments in support of all forms of post-secondary education. Not long after the provincial grant became preponderant, the attitude of the provincial governments began to accommodate itself to the new financial situation. New signs of the change continue to appear. As they do so, it becomes increasingly apparent that the provincial governments are now evincing that particular concern for "their" universities which bespeaks a manager's responsibility rather than a patron's support.

The shouldering of ultimate managerial responsibility is motivated by two considerations, both of them laudable. First, there is the commitment by each of the provincial governments to ensure that places are available for qualified young people who wish to obtain a university education. We have seen that the assumption of this commitment was responsible not only for vastly increased grants to the universities during the 'sixties, but for creating new universities in each province when the existing ones could not handle the inflow. The provincial governments are quite properly concerned with the continued viability of these institutions. Secondly, the provinces wish to meet their commitment to the universities and to the public as cheaply as possible without (if they can help it) causing the depression of standards of instruction.

These two considerations, if not counterbalanced by others, would presumably have led to the ingestion of the universities into the public bureaucracy, leaving them in a juridical and administrative position similar to that of the community colleges. These countervailing concerns may be summed up by saying that the innovative and critical functions performed by the universities were thought to be better served by setting these institutions at some distance from the state apparatus.

The tension between these various purposes has been responsible for constant fussing with granting arrangements in each province. It must be assumed that the present arrangements are as temporary as those that preceded them. Nonetheless, trends are observable, and when they are discussed in context with the factors which motivate each successive change, some order is discernable in an otherwise inchoate tangle of rules, mechanisms, and procedures.

2.7.1 DETERMINING THE GRANT: THE ALTERNATIVES

Existing funding practices in all provinces are a combination of three types of grant: discretionary grants, those determined by formula, and those allocated among universities according to historical ratios. The arrangements in each province will be described in Section 2.7.2, below; but it will be easier to appreciate their impact on the development of the universities if first we survey the three "ideal types". In this survey, we accord special attention to variants of formula financing.

2.7.1.1 Discretionary Grants

Discretionary grants are subsidies accorded to the university on the basis of the government's judgment (or the judgment of a universities commission or other agent of the crown) as to what is necessary, or fair, or as generous as the condition of the public treasury will allow. Their magnitude is not determined by the application of proclaimed or acknowledged rules.

Through much of the history of Canadian higher education the provincial grant, which was very obviously discretionary, simply reflected the government's estimate of what it could afford, or wished to allocate. No attempt was made to assess the overall financial position of the recipient university or universities. This especially applied in the case of institutions which were church-supported, i.e. private (and usually sectarian) rather than public; such institutions originally were financed largely on the basis of endowments, gifts from churches or private benefactors, and fees. Over time the public subsidy assumed increasing importance in the financing of private universities, but at first the public subsidy was not presumed to affect their private status nor to imply any overall government commitment to see that they remained solvent.

In other cases, particularly where provincial universities were involved (i.e., ones with a public and official status), the presumption arose that the province would cover any reasonable or unavoidable university deficit. The university existed to provide certain public services: general undergraduate education, professional training, and vocational instruction geared to the support of industries which bulked large in the provincial economy, as with agriculture in Saskatchewan and forestry in New Brunswick. (In these cases the research associated with the programs was also of obvious economic importance.) Such public universities were expected to accommodate all qualified young people, and sometimes the not-so-qualified, seeking a university education. In return their operations were, in effect, underwritten by the province.

Gradually these expectations, and the reciprocal responsibilities involved in them, were extended to universities other than those with official "provincial" status. In most provinces this change occurred in the latter 1950's or during the 1960's. Concomitant with this modification in the role assigned to or assumed by the "private" universities, the suppostion was made that all universities in the province would be supported at a level which enabled them to fulfill their public obligations.

Initially the size of the provincial grant was determined in the course of informal discussions between university presidents and the provincial premier and/or minister of education. This pattern persists to some extent in Newfoundland, but generally speaking those funds which are distributed on a discretionary basis are now awarded only after a detailed review of each university's budgetary position. The review necessarily imposes delicate tasks upon a public agency: it must judge the affordable quality of service, the efficiency of university operations, and the capacity of the university to finance its operations other than by drawing on the provincial treasury.

Discretionary grants have the merit of making it possible to take account of the special position of each university. They may, in theory but scarcely in Canadian practice, be used to encourage diversity among institutions and to promote excellence. But they also incur numerous disadvantages, including possible inequity. Here, as in so many other instances of governmental assistance to persons and institutions, one is driven to opt for the less glaring of two forms of injustice: that of according different treatment to those who are in similar positions, and that of treating dissimilar cases without due regard for their particular circumstances.

Industrial societies are generally tolerant of that form of injustice which prescribes uniform treatment for all individuals who share some common attribute and who thus, though perhaps with some violence to their individuality, may be classed together. Such a procedure has the merit of being consistent with norms of individual responsibility and with the approbation which is accorded in our society to competitive behaviour. Consistent with these attitudes, in some provinces the universities began during the 1960's to express their dissatisfaction with the discretionary basis of provincial grants. What to the grantor is discretion may to the recipient seem arbitrariness; accordingly, criticisms of provincial granting procedures focussed on the issues of unpredictability, government control, inequity, and the discouragement of private benefactors. As such, the criticisms had to do with the structure of Canadian higher education and the relationship between universities, society, and government. The issues raised in this context have a direct bearing on our understanding of the present role of the university and the impact of finance upon the universities' capacity for excellence.

The criticisms which were made of discretionary grants were symptomatic of changes in the university system and of a changed relationship between universities and the provincial governments. The most important of these changes was the actual and planned expansion of the capacity of Canadian universities. In this context, the universities in several provinces insisted on the need for having a firm financial basis for planning their own growth. They needed some assurance that expenditures they considered justified, or even essential, would also be so regarded by the province. As long as the size of the provincial grant reflected the judgment of provincial civil servants equally with the claims of the universities, and as long as the danger remained that policies would be erratic, the universities could not reasonably hire competent staff (who at that time were in short supply) and make other arrangements for steady expansion of their capacity. In this matter the needs of the universities coincided fully with the interests or policies of the provincial government.

Closely related to the matter of predictability is that of government control -- or its obverse, university autonomy. In most parts of the country it was not questioned that the universities alone had the competence to design academic programs, and that the universities were correspondingly best placed to determine the internal allocation of resources. As long as a way could be found to limit total spending, there seemed to be no reason to interfere with the way in which the universities spent their revenues: academic freedom and administrative efficiency both pointed to the need for distancing the universities from government. Here, again, the expansion of the system was an essential condition of the move away from discretionary funding, as the increase in the number of universities made it easier to establish standards by which to judge the efficiency of their operations without reviewing budgets on a line-by-line basis. (In this connection it should be recalled that, prior to the 1960's, only Ontario, Quebec, and Nova Scotia had more than a single university with the public or quasi-public status which made it primarily dependent upon substantial provincial support.)

In Quebec, the issue of governmental control had a particular significance up until the end of the 1950's. The English-language universities were receiving, relative to the French-language ones, favourable treatment under the Duplessis government. They would have been foolish to have publicly criticized the basis on which grants were allocated. As in much else affecting the interests of the Quebec Anglophones during this period, the claims of the English-language universities were put forcefully, but privately. The French-language universities on the other hand could look on the Church as their mainstay; they were, in addition, cowed into submission by the capriciousness of the government's behaviour towards them, as each years's cheque was ceremoniously presented as the personal favour of the Premier. It was no secret that the size of the cheque depended upon the political acceptability of the university's academic programs, as the history of Université Laval's Faculty of Social Sciences bears witness. (Thus it was, that the demand for placing university grants on a statutory basis was first voiced, during the latter 1950's, by the students' associations in the province rather than by the university administrations.)

Other criticisms of discretionary grants were made on grounds of inequity and of the discouragement of private benefactors. Charges of inequity can, of course, be made regardless of the procedures for distributing available funds. Nonetheless the mood of the latter 'sixties was that if rules could be devised which had the support of all recipients, the government could justifiably claim to have eliminated all grounds for suspected favouritism. This, then, was a further contributing factor in the move away from the discretionary basis of allocating grants. A final consideration, which was of particular concern to some universities and irrelevant to others, was that it had to be made patent that public funds would not be reduced if a university received significant support from private sources. If this occurred, or was thought to occur, universities had little hope of raising funds through public subscription or by an appeal to the alumni.

The move away from discretionary funding, which began with Ontario's adoption of formula financing in 1967 and was soon emulated by four other provinces, is of more than antiquarian interest. An understanding of the reasons which prompted the universities to request, and the provincial governments to agree to, a more open and rule-determined basis of funding is relevant to an understanding of the present condition of Canadian universities. Some of the conditions which obtained a decade ago -- and notably, the need to plan for rapid expansion -- have since been quite inverted; others, having to do with the place and functions of the university in society are as acutely relevant as they have been at any time. In spite of this, the trend may well be back towards more discretionary funding arrangements.

With this in mind, it is important to recognize that the discretionary element in the funding of universities by government has never disappeared. Discretionary funding can be camouflaged by the use of a formula of sorts, and even where a bona fide formula is in use some non-formula funds are allocated to take care of special needs. The funding of capital investment, which is not examined in this report, remains largely or wholly discretionary in several provinces.

2.7.1.2 Formula Financing

Formula financing is a way of determining the size of the provinces' operating subsidies, or some part of them, on the basis of an algebraic rule or formula. The formula may be used for two separate purposes: to determine how much the province will spend on the universities, and to determine in what proportions this sum, or a sum otherwise settled upon, will be distributed among them. At present, only Quebec uses a formula which has any impact on government spending, although in Ontario the original intent in introducing formula financing (1967) was ostensibly to remove or reduce the discretionary element in both types of decision.

In some provinces advisory agencies do use a model to calculate the percentage increase in university grants which is required for the attainment of certain objectives (accessibility, maintenance of quality of instruction, etc.). For example, price indices for certain standard items in university budgets may be applied to a historical base. But this practice is, except in Quebec, quite distinct from the process of distribution. An essential feature of formula financing, as the term is intended here, is using an algebraic rule to allocate public monies among a number of institutions.

Formulas are of many types, some of them complex. At a minimum, formulas define some technique for estimating the demands made on university resources for purposes of instruction. The units employed are various; in the simplest variants, the units are student numbers weighted by program, that is, by discipline-area and level. The basic enrolment unit (in Ontario: Basic Income Unit, or BIU) is generally the full-time student in a general undergraduate arts and science course; part-time students are given a fractional weighting. Students in expensive programs are weighted at some multiple of the arts undergraduate. Full-time equivalent enrolments in each category are multiplied by the appropriate coefficient, and the aggregate number of enrolment units is a proxy for the magnitude of the university's instructional activities.

In the simpler formulas, such as those hitherto used in some Canadian provinces, all university costs are presumed to be proportional to those costs directly attributable to instruction; thus all that is needed to apply the formula is the total number of enrolment units for each institution. Each one's share of the available funds is the same as its share of the total number of enrolment units across the system.

2.7.1.2.1 Distribution and dual-purpose formulas

All formulas establish rules for distributing a public subsidy among universities. A formula which does *only* this may be called a *distribution formula*. Such a formula may, however, easily be turned into one which also determines the size of the aggregate provincial grant, or the formula part of it. This is done merely by establishing in advance what the value of the unit is to be. Then: dollars per unit, times number of units, equals size of grant; this is true both for the individual university, and for the provincially assisted universities as a group. One is tempted to call this a size-of-the-pot formula, but since it also distributes the funds which in the aggregate it determines, the more decorous term *dual-purpose formula* will be used. This term has the further advantage of being judiciously ambiguous: it leaves open what the two purposes may be -- and we find, in fact, that with relatively complex formulas, system-wide management by a body external to the universities could be one of them.

This may seem implausible, since one of the main purposes of introducing formula financing in several of the Canadian provinces has been to guarantee the universities a substantial degree of autonomy. A review of the brief Canadian experience with formula financing, including comments about the relationship between formula finance and university autonomy, will be found later in this section and in the following one (Section 2.7.2). Before proceeding to such a historical review, however, it will be useful to examine different types of formula; in this way it will become evident that formula financing can take rather different forms from those hitherto used in Canada, and may also serve rather different purposes.

2.7.1.2.2 Dual-purpose formulas and the financial management of university systems

One implication of using a formula based on enrolment units is that it makes no financial difference to the university how many courses are included in a given degree or diploma program; similarly, university finances are not affected by the number of hours of formal instruction in a course. This is generally regarded, at least in the universities, as one of the virtues of using enrolment units as a proxy for university resources allocated to instructional purposes. Other units, or other proxies, may be used. In the United States "course enrolee" or "weekly student hours", or (more commonly) "credit hours" are generally used as the basis of formula financing. In these cases the units may be unweighted (a full-credit course or a credit hour is one unit, regardless of level or discipline; a classroom hour -- lecture, seminar, or lab -- is one classroom hour). Alternatively, the units may be weighted by level (e.g. junior undergraduate, senior undergraduate, master's, doctoral) or by level and discipline-grouping. In all cases, a university's share of the units generated by all institutions in the system is its share of the state grant.

The formula, in any of the variants so far described, does not much assist government in making decisions about the size of overall expenditure on universities. Whether the formula is based on enrolment units, course enrolees, or weekly student hours, the dollar amounts attached to the unit chosen are likely to reflect historical cost-levels in the system, with incremental changes reflecting anticipated changes in student demand, inflation levels, and the mood of the government -- the latter presumably being wafted by changing public attitudes towards the universities, and by the condition of the public treasury. For some tastes, this is too much "muddling through". An attempt may be made to increase the supposed rationality of decision-making by shifting the formula from a "weekly student hours" base to a "faculty entitlement" base, as follows:

$$\text{Number of Faculty} = \frac{\text{Weekly Student Hours}}{\text{Average Class Size and Average Faculty Load}}$$

(This equation and the two immediately following are drawn from Sheehan, 1977, 306-308.) Recasting the formula in this way does not affect the proportions in which public funds are distributed among universities, because "average class size" and "average faculty load" are calculated across the system and not individually for each university; the denominator in the equation is therefore constant. The "number of faculty" in a given university is a notional figure, which is why (above) I describe it as a "faculty entitlement" figure.

A formula based on faculty entitlements rather than on weekly student hours produces the same distribution of funds, and is more work; it requires more data. What is the point? The question has, I think, a double answer. On the one hand, the equation may assist in policy-making within the university, by devising norms for allocating staff among departments. On the other hand, it may inform policy decisions made by external funders. A universities commission or a department of education may use the formula as a guide in judging whether universities are in general under-staffed or over-staffed -- in effect, to decide whether they are really as hard pressed as they claim to be. A formula which employs the equation above can be used to decide levels of funding if the government or its agent wants to exercise its own judgment about the reasonableness of class sizes in universities and faculty teaching responsibilities. The formula is then used to determine provincial expenditure levels, not mechanically but normatively: unit values are not entirely ex machina, but to some extent reflect the data collected to apply the formula. More precisely, marshalling the data in this way may inform political judgments, judgments which must inevitably be made regardless of financing technique.

More elaborate formulas may carry this tendency further. For example, if the equation above is multiplied on each side by "average faculty salary" across the system, the result is as follows:

$$\text{Faculty Salary Expense} = \frac{\text{Weekly Student Hours} \times \text{Average Faculty Salary}}{\text{Average Class Size} \times \text{Average Faculty Load}}$$

If there is a provincial policy on wages and salaries in the public sector, and it is desired to bring the universities into the ambit of this policy, "average faculty salary" can be set by political decision. Indeed, all averages in the equation may represent policy choices rather than descriptions of fact. When this happens, an equation which started out as part of a distribution formula is transformed into one component of a cost model for the university sector. The remaining components may be supplied in either of two ways: (a) one may assume that all other operating costs are proportional to the postulated faculty salary expense, in which case this figure is multiplied by an appropriate coefficient to produce an estimate of justified or reasonable operating costs, both for each university individually and for the system as a whole; alternatively, (b) other equations may be used to estimate operating costs other than faculty salaries. For example, maintenance costs may be expressed as a function of square footage. Total operating costs are then the aggregate of the figures produced by any chosen number of cost equations, the number depending on how closely the government wishes to monitor university operations and to control the universities' financial management.

Consider, for example, the following equation:

$$\text{Faculty Salary Expense for Instruction Program} = \frac{\text{Weekly Student Hours} \times \text{Relative Faculty Effort} \times \text{Average Faculty Salary}}{\text{Average Class Size} \times \text{Average Faculty Load}}$$

This is the previous equation, multiplied on each side by a fraction representing "relative faculty effort" on teaching, as opposed to research and other duties. Other equations could be devised to supply estimates of faculty salary expense for research, and so forth. As I have already indicated (Section 2.3), I do not believe that a meaningful distinction can be made between faculty research activities and instruction-related activities, for the simple reason that most research *is* instruction-related; but there are those who do find such a distinction meaningful and who generate faculty activity analyses to supply data for insertion into equations such as the one above. If one takes this sort of thing seriously, and puts enough effort into data collection, sophisticated models of university costs can be constructed.

Particularly in the western provinces, there appears to be a good deal of interest in adopting or adapting a classification scheme for university costs developed at the [U.S.] National Center for Higher Education Management Systems (NCHEMS), at Boulder, Colorado. This scheme identifies six "programs" -- in the management sense, such as can be fitted into budgeting systems; not academic programs -- which collectively account for all university expenditures. Three of them are "primary programs": *instruction*, *research*, and *public service*; the remaining three are "support programs" necessary for the performance of the first three: *academic support* (e.g. libraries, computing services, curriculum development), *student support* (admissions, student aid, health services, etc.) and *institutional support* (central administration, plant maintenance, student records, etc.). Some such schema is essential for the conduct of cost studies in individual universities, even if the ultimate aim is to cost academic programs rather than management or budget-category programs. If the intent is to cost academic programs, the budget analysis comes first, and then direct and indirect costs (e.g. central administration) are apportioned to the various degree or diploma programs.

The question which concerns us here, however, is not the costing of academic programs (for this, see below, Section 2.7.1.2.4) but the various kinds of formula which may be devised as a basis for funding decisions by a provincial government. Formula financing is not a single technique, but a very large family, of which the Canadian members are the simple and innocent ones. Their more sophisticated cousins may employ a series of equations to identify actual or allowable university costs for various items of expenditure or various university functions. When a formula is used for distributional purposes alone, the figures inserted into the equations must be empirically derived, though the techniques for doing so may be dubious (it depends on what the equations call for).

On the other hand, when the formula is a dual-purpose one -- when it is used to assist decision-making about the level of government spending on universities as well as to determine the distribution of public funds between them -- the variables may reflect the discretion of a planner as much as, or rather than, any empirical data. The more elaborate of the dual-purpose formulas may easily, though this may not have been the original intention, come to be employed not so much to determine the financial requirements of the universities, but to control the design, management, and operations of a whole system of higher education. One reason for this is that the empirical data may just be guesswork anyway.

There are signs that some Canadian provinces are moving tentatively towards a formula financing technique which may eventually form the basis for system planning. At a minimum, they are supplying themselves with the data, techniques, and administrative expertise for using a formula in this way. Whether they end up doing this involves prognostication; it is not history. The history of formula financing in Canada is limited to the introduction, and in some provinces the subsequent abandonment, of an elementary type of formula financing using weighted enrolment units. The remainder of this discussion consequently deals exclusively with enrolment-based formulas and provincial experience with them.

An enrolment-based formula of the dual-purpose type amounts to the same thing as a fees-supplement scheme. It is thus analagous to the program administered through the federal Department of Veterans' Affairs in the immediate postwar period, or to a "coupon" scheme of the kind advocated initially by Milton Friedman and subsequently by many others (see Section 3.4.4, below). The analogy to such schemes is of course imperfect, in that the fees-supplement is paid in respect of all students enrolled in the universities of the province (not just war veterans, or Canadians, or any other grouping), and no provisions are made for subsidizing the fees or other expenses of prospective students who wish to study in other jurisdictions (provinces or countries).

Such differences, however, do not alter the main point of comparison. It is that a dual-purpose formula was thought, by those who argued for its introduction in Ontario, to conduce a system of higher education shaped essentially by student demand. (Of course it was known that student demand would be stimulated by keeping fees down, and the supply of places in the system would be buoyed up by the per-student subsidy.) In short, even though the proponents of the new system did not employ the language of economic analysis and probably did not think in such terms, their expectations of formula financing were that the entire system of higher education would reflect the operation of market forces -- as modified, of course, by the per-student subsidy.

In effect, the universities would decide what sort of instruction had a market, would price their product (i.e., set their fees), and would take the risks which entrepreneurship entails. One of the anticipated advantages of such a scheme was thought to be product diversification, that is, it would encourage diversity in types of degree programs and styles of instruction. Each university would define its own role, specializing in certain discipline-areas and certain levels of instruction, choosing its own mix of instruction and research, and so forth.

But it did not work out this way, perhaps because the structure of fees-supplements was such that the lucrative programs were the graduate ones, or were thought to be so; perhaps because the universities lacked the caution which is as much a part of entrepreneurial talent as bullishness is; perhaps because the province would not reveal the level of the prospective subsidy more than a few months in advance (thus eliminating the possibility of effective long-term planning based on prospective revenues and encouraging behaviour aimed primarily at short-term advantage); and perhaps because, unlike the Friedman scheme, it was never intended to leave the universities to finance their own capital investment.

The Friedman model would have the universities sally forth into the financial markets to obtain investment funds, and amortize the debts so incurred through future fees and fees-supplement income. But so far as I know, neither Ontario nor any other province ever seriously considered eliminating the distinction between capital and operating grants. The result was that as long as the government was willing to finance new buildings and exercised no stringent control over the introduction of new degree programs, the universities had no reason to exercise restraint. Most of them especially during the latter 'sixties, committed themselves to headlong and indiscriminate expansion. Since qualified staff were then in short supply, salaries rose sharply and unit costs across the system rose correspondingly.

The first casualty of this experience was the dual-purpose formula. To the government, such a formula represents an open-ended program; if the per-student subsidy is set in advance, the magnitude of government spending on universities is determined by factors completely outside its control, namely, the number of people who decide to go to university, and the program choices they make. Indeed, it is doubtful that the Ontario government ever let itself be placed in this position, as it waited until estimates of prospective enrolment were available before announcing the size of the Basic Income Unit, or BIU. The current practice is not open-ended at all: the government announces how much it is willing to spend on its universities, and the size of the BIU is obtained by dividing weighted student numbers into the available number of dollars (see Section 2.7.2.5, below).

The formula, then, is used for distributional purposes alone; indeed, it is doubtful that it has been otherwise in any province at any time, with the exception of Quebec (see Section 2.7.2.6, below).

2.7.1.2.3 Formula financing and the joint funding of teaching and research

Since Canadian universities receive some of their income specifically in support of research (see Section 2.4, above) it could scarcely be claimed that absolutely no distinction is made between public subsidies for teaching and governmental sponsorship of research. Still, the time of principal investigators constitutes a large (often the largest) component in research costs, and an overwhelmingly large proportion of staff salaries derives from the universities' general operating funds. It is this element in the support of research, plus the indirect costs borne by the universities, that is the focus of the discussion below.

One of the most important features of funding universities by an enrolment-based formula is that student numbers, especially at the graduate level, are taken as an index of research effort. In this connection it is notable that the key document which presaged the introduction of formula financing in Ontario (Wright, 1965) made no attempt to assess research costs, and suggested that staff time spent in keeping up on the literature and in publication-oriented research is best described as part of the university's overhead. It thus not only skirted the question of separate costing of teaching and research, it declined to regard research activity as being more associated with certain levels or programs of instruction rather than with others. It noted, by way of illustration, the difficulties of assigning research costs to separate instructional programs when a chemistry professor teaches students in engineering as well as those taking chemistry degrees.

Logically, however, if all operating costs are thought to be related to student numbers (making allowance, of course, for the assignment of different weights to different degree programs), one must presume that for any given program, instruction and research are combined in a more or less fixed ratio. One of the complaints against formula financing is that this presumption has made it difficult for basically undergraduate universities to develop much of a research capacity, and that financial inducements have tempted some universities into launching graduate programs of doubtful quality, or programs for which a sufficiently numerous and talented clientele was not available. Especially in the natural sciences -- and even there, more in some disciplines than in others -- it is difficult to engage in any substantial research effort without having a graduate program, so that in the nature of the case the incentives to move into graduate work have been substantial; but it is possible that such incentives were reinforced rather than diluted by the adoption of formula financing in several of the provinces. This view, however, is premised on the judgement that the weights assigned to various programs have been inappropriate, a matter which is discussed in the next section.

2.7.1.2.4 Formula weights; costing academic programs; steering effects

In devising an enrolment-based formula for funding universities the biggest problem is to know what weights to assign to various programs. The simplest procedure is to disregard cost differences between (say) dentistry and undergraduate arts, and to distribute available funds on a simple per-student basis. This was how federal funds were allocated to the various institutions within a province in the 1951-1967 period. In this case, however, it was possible to disregard cost differentials only because the provinces could if they wished take such differentials into account in the distribution of their (rather larger) discretionary funds. By contrast, where formula financing has been the main instrument for public funding of universities, it has been necessary to offer different perstudent subsidies in different programs.

The assignment of weights may be based on some estimate of actual or "justifiable" student costs in each program; alternatively, it may be derived from a pre-existing distribution of subsidies such that the new formula produces the closest possible "fit" to what preceded it, while establishing rules for subsequent changes in the proportion of funds going to each institution; or it may simply reflect public policy, being calculated to have a steering effect on university decisions, i.e. on the programs offered and the numbers of students admitted to each one. (A generous weighting could be assigned to programs which it is a matter of policy to expand, and a more exiguous weighting to those thought to be over-subscribed in relation to social needs.)

So far as I know, the last of these criteria for assigning weights by program was never favourably considered in any province. On the contrary, it has always been intended to avoid any long-term steering effects, such as would arise when the public subsidy is not proportional to presumed per-student costs in each program. Were such a policy to be adopted, one of the chief arguments in favour of formula financing -- that of giving the universities surer grounds for planning their own development -- would be vitiated: it would be necessary to introduce frequent changes in formula weights as estimates of manpower needs or other social preferences changed. Moreover, even if estimates of public needs were stable, it would be necessary to change the weights as the steering effect of the formula was felt and the proportions of graduates from various programs changed. Whether for these or other reasons, when formula financing was introduced in several provinces, formula weights were set on the basis of estimated program costs, or in accordance with the existing distribution of funds between institutions, or on a compromise basis which reflected both of these two criteria.

Of the two, the costs-estimate criterion is the more rational, but it has two major drawbacks: first, that accurate estimates of the costs of various academic programs are difficult or impossible to obtain; and second, that it would be politically awkward to introduce a formula which drastically redistributed funds between universities, as weightings based on cost studies risk doing.

On the matter of accuracy, the problem is that the usual techniques for costing academic programs require one to make dubious assumptions which largely vitiate the results. It is not simply that Canadian experience has been limited and that data are often scarce and/or unreliable. On the contrary, it is doubtful that more data, or data collected more expensively, would produce significantly more reliable estimates of costs per student in each program. Let us see why:

(a) It is necessary to isolate costs of instruction. The objections to trying to separate research costs from costs of instruction and public service have already been presented (Section 2.4.1, above). The objections do not, however, rule out an attempt to cost academic programs if instructional costs are taken to include the costs of those research activities necessary for maintaining a satisfactory level of teaching. (It will be recalled that the UNICOM system, which follows this convention, attributed less than three per cent of operating costs at the University of Manitoba to non-instruction-related research activities.) Public service activities may be more easily separable from instruction, although in some cases the distinction between instruction and public service is artificial and arbitrary. Where, for example, does one draw the line between clinical services and medical or para-medical training? Still, the sums involved as a proportion of the total are presumably small enough that a substantial margin error in estimating noninstruction related research and public service activities would not seriously impair estimates of program costs. It must be reiterated, though, that the radical separation of research and instructional costs is a nonsense, and that cost estimates based on any such attempt are worthless for any purpose.

(b) By far the largest direct cost of instruction is faculty time. It is usually, though perhaps not always, assumed that if a staff member teaches three courses each involving the same number of classroom hours, that he devotes the same proportion of his time to each. Everyone who has taught at university knows that this is not so; it depends on many factors, including: course level, class format (lecture, seminar), the number of students enrolled in each course, the number and type of assignments required of each student, how long the instructor has taught the course, and how rapidly scholarship in the field is changing. The very complexity of factors affecting time spent on each course makes any assumption other than the "equal time" assumption unwarranted; no matter what one does, the data will be inaccurate. In consequence, an attempt to avoid general rules may be made. Faculty may be asked to fill out "faculty activity analysis" forms each year; the clear impossibility of supplying what the forms ask for leads to frivolous answers which have little of the charm but all the fantasy of fairy tales.

(c) Further difficulties are occasioned by the assignment of indirect costs (e.g. central university administration, plant maintenance, library) to the teaching departments and subsequently, together with some proportion of departmental administration costs, to individual courses. It is in this area that painstaking work is most likely to have some payoff in terms of the validity of the results, but estimates of the appropriate allocation of indirect costs to various departments and courses still vary widely, and the assignment eventually made is at the level of informed conjecture.

If one disregards the large margin of error involved, and proceeds to estimate costs per course, it is then a mechanical task to calculate costs per course-enrolee and finally cost per student by program and level. This is done by seeing which courses students in the various categories take. It is a matter of judgment and/or university policy whether the costs of supervising the work of graduate students is separately costed or is related as an uncalculated and unpaid "extra".

In view of the insurmountable dificulties of producing accurate results, perhaps the wisest conclusion is that cost studies conducted along the usual lines may have their purposes, but that the assignment of formula weights is not one of them. The results of such studies are simply not reliable. In this vein, note the views of a person whose experience with them is extensive (Sheehan, 1977: 168):

> Because cost data are typically in the form of numbers, they convey an impression of precision which they do not possess. In higher education, the difficulties associated with compiling comparative cost data for planning and management decisions should leave no doubt that such data are only approximations based on assumptions and opinions.
>
> In the appropriate decision circumstances, considering cost data indices properly relegates comparative cost data to a red flag status -- that is, if cost _differences_ are larger/smaller than anticipated, the analyst or decision maker may pursue the cause of the difference.

Sheehan, in recommending a financing technique for Alberta universities and colleges, avoided using cost data to assign formula weights. (For Sheehan's recommendations, see Section 2.7.2.2, below.)

In my opinion it is misleading to suggest that data on average cost by academic program can supply an objective, neutral, or rational basis for public funding of universities.

The unreliability of standard costing techniques (the accounting approach) has led some British econometricians to propose an entirely different way of calculating program costs (Verry and Layard, 1975; Verry and Davies, 1976). The procedures they have devised seem to be applicable to the task of assigning program weights within an enrolment-based formula, although they themselves made no mention of this potential use of their work.

The techniques used by Verry and his associates avoid reliance on detailed data about individual universities. Whereas the accounting approach is based on the calculation of program costs within each institution, and may then proceed to average the results (if desired), the econometric approach analyzes cross-sectional data for a number of universities and draws inferences about what it usually costs to teach an undergraduate or a postgraduate in a particular discipline.

The technique requires only very general budget data for each university. In addition to budget data, the econometric technique requires enrolment figures by university and also by discipline-grouping and level (graduate/undergraduate). Verry and Layard (1975) examined data on all British universities except Oxford and Cambridge for the year 1968/69. In each case they required only "central university costs" and a residual figure for "departmental costs", the latter being sub-divided into 17 subject or discipline groupings. Of the 17, they examined six: arts, social sciences, maths, physical sciences, biological sciences, and engineering. They subtracted from their budget data a figure based on the proportion of faculty time estimated to have been devoted to research in order, they suggested, "to reduce bias in the estimates of teaching costs" (1975: 69). (Had they not done this, the estimates of program costs would have been higher in every case, and possibly the ratios between them would also have been different.) They acknowledge that the allowance they have made for research is an input variable and not a measure of output. On the other hand, the calculations by Verry and Davies (1976: 17-21) do include a research output variable, based on the number of publications. It would have been quite possible, however, in both studies to have disregarded research, and to have costed academic programs on the assumption that research is either a byproduct of teaching or essential to maintaining quality.

The data are analyzed by regression techniques which yield estimates both of the "start-up" costs or fixed costs for a typical department in each discipline grouping (i.e., costs incurred regardless of the number of students enrolled) and of marginal costs at the undergraduate and the graduate levels (i.e., the additional costs incurred by adding one new student to the department total).

The econometric approach is unsuited to determining program costs in individual institutions or (as an average figure) over a small number of institutions; in Canada, data from a single province would not suffice. Its attractiveness, however, lies in its capacity to supply yardsticks for program costs on a comparative basis drawing only on reliable data which universities could supply without embarrassment or breach of confidentiality. In view of the widely varying circumstances in which individual universities are placed, and in view of differences in the structure of the post-secondary sector between provinces, one could not expect econometrically derived cost estimates to form the sole basis for provincial operating grants to the universities. On the other hand, they could offer a rough guide to comparative funding levels both as between provinces and as between universities within a province. If a formula were based on them, additional non-formula or discretionary grants would be necessary so that account could be taken of the individual circumstances of each college and university; this has been standard practice anyway where formula financing has been in use.

Whatever one's judgment about the potential usefulness of cost studies derived by econometric techniques, one thing is certain: they have not been used in Canada in setting formula weights. On the other hand, estimates of program costs have been made using the accounting approach, and the assignment of formula weights has usually been justified by referring to such estimates. The evidence, however, suggests that the real importance of cost studies has been to take a formula derived by trial-and-error and clothe it in fancy dress. The need to avoid goring oxen is a politically powerful motive, and in practice the most important consideration in setting formula weights has been to devise a rule which endorses, in the main, the existing distribution of funds between recipient institutions.

Once a formula has been established on this or any other basis, there will of course be subsequent changes in each university's share of the total, as enrolments by program and by university change in accordance with university capacity and with student preferences. The potentiality for changes over time in the percentage distribution of public funds between institutions -- indeed, the certainty of such shifts -- is one of the reasons for having a formula: the formula proclaims the rules under which such shifts will occur. On the other hand, an inappropriate setting of weights will produce unintended, perhaps unanticipated, and certainly undesired steering effects.

In a time of rising enrolments a university which thinks the formula weightings treat it unfairly may, in the absence of external controls, introduce new programs and thus claim a larger share of the pie. As a result, any discrepancy between actual -- or rather perceived -- program costs and formula-determined income per student will have a steering effect as surely as if weights were assigned with this deliberate intent. Whether or not this has actually occurred is a matter of dispute.

Program weights adopted in different provinces do display a substantial range of variation. A comprehensive listing of formula weights used at one time or another over the past decade would be of stupefying complexity, particularly as in some provinces distinctions have been made between individual years in a program of study. The number of programs in each weight-category can consequently be quite large.

Looking over the lists, what first impresses one is that consistency of judgment about the ratio of apparently justifiable costs, one program to another, simply does not exist. A sampling of program weights is reported in Table II-16. The range of variation we observe there is too great to be consistent with any conclusion other than that the weightings represent the distribution of funds existing at the time the formula was introduced. That distribution must either have been presumed -- gratuitously -- to have been fair enough to deserve writing up into a rule; or it must have been thought that meddling with it would be too politically awkward. In the case of Ontario, we have documentary evidence to show that both considerations applied (Wright, 1965).

A second impression from Table II-16 is that, notwithstanding the variations already commented upon, graduate programs have high weightings. They are not necessarily too high, as the Verry and Layard calculations of program costs in British universities suggest (see Table II-17). If one applied those weightings, the range would be almost 1:7, as compared with Ontario's 1:6. On the other hand, the estimated costs of graduate instruction in arts and the social sciences are not particularly high -- 2.3 and 2.8 respectively.

TABLE II-16

FORMULA FINANCING: SAMPLE PROGRAM WEIGHTS

			Program Weights				
			Undergrad. & Professional			Graduate	
Province (1)	Year (1)	Range of Weights in Formula (2)	Arts (gen'l) (3)	Engi-neering (4)	Medi-cine (5)	Masters (6)	Doctoral (7)
Ontario	1967/68	1 to 6	1	2	3	3 4	6
Alberta	1968/69	1 to 8	1	1.5 3	3	3 5	3 8
Manitoba	1969/70	1 to 14	1 2	1 3	6 8	6	6
Nova Scotia	1972/73	1 to 10	1	1	5	3	10
MPHEC	1976/77	1 to 8	1	2.7	8	2 5.4	4 8

Notes: Ontario: Weighting for medicine changed to 5 in 1969/70; Weighting for master's program depends on field of study.

Alberta: Weighting in engineering depends on year in program; Weighting in master's program depends on field of study; Weighting in doctoral program depends on year and field;

Manitoba: Only music (upper years) and dentistry had weights higher than 8. Weighting in undergraduate and professional programs depends on year in program.

Nova Scotia: In the period 1968/69 to 1971/72 the range of program weights was 1 to 5.

MPHEC: ("Maritime Provinces Higher Education Commission"): Published data give program weights ranging from 1.5 to 12; these have been re-calculated to a base of 1.0 for ease of comparison.

Sources: Annual reports of universities, commissions or advisory councils.

TABLE II-17

Ratios of Marginal Operating Costs in British Universities in 1968/69, as Calculated by Verry and Layard

	Arts	Soc. Sci.	Maths.	Phys. Sci.	Biol. Sci.	Eng.
Undergraduates	1	1	1.1	1.5	1.8	2.2
Graduate	2.3	2.8	4.7	6.8	5.1	5.2

Source: Calculated from data presented in Verry and Layard, 1975, p. 70.

(A.E. Safarian, in a comment to the author on an earlier draft of this section, notes: "The Verry and Layard data on arts and the social sciences, which show low unit costs at the Ph.D. level, are ex post observations on a particular way of doing Ph.D. work in these areas. Thus one professor may supervise many Ph.D.'s and spend little time with each except at the beginning and end of the process, in contrast with the much smaller number supervised in other areas and the close relation with the student. The costs of the former approach are well known in terms of length of time to degree, and inadequate learning-teaching methods, non-completion of degree, etc. A better ex ante model -- one still far removed from the sciences and engineering -- would probably involve fewer students and a much higher unit cost.")

It is critically important to note that the Verry and Layard cost estimates are for marginal operating costs, whereas the estimates produced in Canada by the accounting approach are always for average costs. One would expect that the range of variation in average program costs would be rather greater than for marginal costs, again suggesting that the range of program weights in the various provinces is not excessive. Still, there are other considerations which suggest an opposite conclusion, and we should look at them.

There is indeed prima facie evidence to suggest that, given the norms of supervision, the weights assigned to graduate programs are too high. In this connection we may note the unwise proliferation of graduate programs under formula financing, an occurrence which has not been very effectively curbed by imposing administrative controls on the introduction of new programs. (This matter is discussed in the next few sections, which deal with funding arrangements in each province; see also Section 3.3.1.2.)

On the other hand, there are also non-financial incentives for an undergraduate university to move into graduate work. During the latter 'sixties, when the rush to create new programs was at its height, doctoral candidates intending an academic career were favoured by a seller's market; senior staff of any competence were especially scarce. The universities found recruitment of faculty difficult unless they could promise some graduate teaching and offer good research opportunities. Moreover, a university's prestige, even in undergraduate programs, depends partly upon the visibility that faculty publication, graduate programs, and professional schools can achieve. Thus the sole fact of the proliferation of highly weighted programs does not clinch the case that formula financing had unintended steering effects.

More telling is the fact that a formula which aims to fit the existing distribution of monies between universities necessarily matches program weights to average rather than to marginal costs. To establish a high quality graduate program is expensive. It requires a good deal of capital investment (the initial investment is not reflected in operating costs, though its maintenance will be), expenditures on equipment and supplies, a diversified faculty able to cover the major fields within the discipline (preferably with more than a single person in each field), and the resources of a research library. In other words, the start-up costs are large, though variable between disciplines and certainly not as great for the master's degree as for the Ph.D. One ought not to suppose that running a graduate program of acceptable quality requires only a few extra beakers and white mice, a bit of computer-time, and some (perhaps many) hours of individual instruction and thesis supervision. These are the per-student costs, and will be incurred proportionately at the number of students, whether they are few or numerous. But there are also start-up costs -- a certain number of faculty and certain facilities must be available to launch a university (or department) into graduate instruction. One cannot simply graft a graduate program onto an undergraduate one as if there were no minimum scale of operations required This, by the way, was not taken account of in the Verry and Layard estimates (Table II-17), and leads one to doubt the accuracy of their graduate/undergraduate marginal cost ratios.

One can only surmise that there are few graduate programs in Canada that have achieved maximal economies of scale; marginal costs must be presumed still to be below average costs and thus below the formula-generated revenue per student. This observation applies especially if a minimumsize faculty complement per discipline is posited as part of the start-up costs of a graduate program.

The discrepancy between marginal and average costs must have been even greater at the time when formula financing was introduced in various provinces. This was when the weights were pegged at a level inferred to be that of average costs. A department with a graduate program could "earn" its university a substantial income by taking in more graduate students; and a university which knew that it would operate a proposed new graduate program at a loss for a few years could hope -- since enrolment increases were anticipated, with no end or limit in sight -- to recover the loss over the longer run. In the meantime it would have placed itself in a more favourable position to compete with the other universities in an international market for professional talent.

These are the reasons why, though the assertion remains unprovable, one may impute a steering effect to formula financing as introduced in several Canadian provinces between 1967 and 1969. (The two formulas brought into partial effect since then have been coupled with administrative controls over the introduction of new programs.) Perhaps one can no longer rightly speak of "steering effects" because of external controls on the universities, and because we are now in a period of enrolment decline when the effects of formula financing are different. Still, if program weights are such that they create a net benefit for the university because they exceed the costs of offering graduate programs -- or are perceived to do so -- then formula financing has two major faults. One is that undergraduate universities suffer from inequitable treatment. The other is that a university which relies heavily on funds generated by graduate enrolments will find it difficult to axe a graduate program which no longer attracts able students in the numbers needed to run a first class operation.

2.7.1.2.5 Formula financing in a period of declining enrolments

When a formula is used for distributional purposes alone, a change in the level of aggregate enrolment within a province does not automatically affect the magnitude of provincial spending on universities. (Actual or anticipated levels of enrolment will probably affect political decisions about the size of the total allocation which is shared out according to formula financing, but that is another matter.) It is, though, a consequence of formula financing that any shift in each university's share in the total (weighted) provincial enrolment will be reflected in the distribution of funds between universities. In a period of growth this is an attractive feature of formula financing for those universities which are growing most rapidly; in a period of enrolment decline universities with shrinking student numbers may well be bankrupted. They would benefit from the inclusion of some element in the formula which would cushion the impact of the decline in their relative position.

Suppose there is an enrolment-based formula without a cushioning feature. If enrolments in the province drop, a university of high prestige may be able to fill its quotas in spite of the general trend. Like every other university, it will be hard hit by any decline in the real (i.e. inflation-discounted) value of the enrolment units. For any given level of funding, however, it will do pretty well relative to universities of lesser prestige or attractiveness. The full brunt of the contraction of the system will be felt by those other universities.

In these circumstances a province may take a let-the-chips-fall-where-they-may attitude, and use an uncushioned formula as a way of selecting those institutions which will have to close down or drastically trim their operations, effecting the desired contraction in the system. Up to now, however, all indications, in all parts of the country, are that such an attitude would be politically unacceptable. As a result, formula have been suspended, patched up, or supplemented with non-formula funds in order to save threatened institutions.

There are a number of possible cushioning devices, discussion of which is best left to the material on individual provinces (Section 2.7.2) and to the analysis of policy alternatives in Section 3.3.1.1. Some of them are softer cushions than others. We can imagine, however, a point at which a formula could be made completely insensitive to changing enrolments. This would be tantamount to distributing funds according to historically established ratios. Some consequences of doing so are discussed in the next section.

2.7.1.3 Funding by Historical Ratios

There is an historical element in the funding arrangements in every province. Discretionary grants are usually incremental, that is, based on the previous year's grant; the funding agency may then add an increment for inflation and make some adjustment for changes in enrolment or other factors considered pertinent. Formula grants too may be more historical than is acknowledged, if formula weights reflect the pattern of distribution between universities at the time of its inception. In addition, if a formula dictates any substantial change in the proportion of available funds allocated to each institution, particularly if the aggregate sum is not rising rapidly, the change is likely to be phased in slowly. This is equally the case when a newly devised formula is being applied, or when it is judged desirable to cushion the impact of enrolment decreases.

Historical distribution ratios, then, may be expected to have some impact on the allocation of provincial grants in almost any situation. The questions which concern us are: how much impact, and for what length of time?

In the extreme case, a province may decide to perpetuate the existing distribution ratio, making no allowance for any other factors. This situation is most likely to arise when a formula has been in use but its continued application would yield unacceptable results. The formula may then be suspended pending revision, or abandoned altogether while some new financing technique is being designed. The shift away from formula financing may be described in slightly less drastic terms than these, by saying that the number of allocation units is to be frozen for a period of time, but -- verbal differences aside -- what is important in the new situation is that nothing a university does can alter its financial position while the "freeze" lasts. It cannot earn itself additional funds, and shoddy performance will be underwritten by the provincial government. Funding by historical ratios must, in consequence, be known to be temporary. In that case the behaviour of the individual institutions will be affected by whatever suppositions they make about the financing technique that will replace the suspended formula.

It follows that funding by historical ratios is not likely to commend itself to persons concerned with the design of financing techniques. It is a fall-back technique and in this sense it is not comparable to discretionary funding or to formula financing. Nonetheless, in the current situation in Canada, one cannot ignore funding by historical ratios.

2.7.2 DETERMINING THE GRANT: HOW THE PROVINCES DO IT

The recent history of funding practices in each of the provinces is instructive because it reveals much about the factors which make a particular technique, or a particular mix of techniques, acceptable. In general, the trend during the 'seventies has been away from formula financing, which has shown itself to be a device which the universities find more attractive in a period of expansion than of fluctuating or declining enrolments.

Newfoundland, Saskatchewan, and British Columbia have never used an enrolment-based formula. Alberta and Manitoba have suspended or abandoned formula financing. Formulas once used, if loosely, in Nova Scotia and New Brunswick were suspended in 1974 when the Maritime Provinces Higher Education Commission was created; the MPHEC was formerly committed to introducing a formula for funding universities on a regional basis, but now distributes the available subsidy mainly on a historical basis. Ontario retains a formula, but the historical element (enrolment patterns in the mid-'seventies) now considerably outweights current enrolments in determining the allocation of the government grant. Finally, Quebec employs a formula of quite a different type which provides for slight annual modifications in historical distribution ratios. Its financing technique is incrementalist but there are rules (incidentally, very complex ones) governing the size of the annual increments.

2.7.2.1 British Columbia

Since the fiscal year 1975/76 both operating and capital grants have been allocated on a discretionary basis by the Universities Council of British Columbia (UCBC). The universities present their budget requests annually to the UCBC; the Council passes them on the Minister of Education together with its own recommendations; and the sum eventually voted by the legislature is transmitted to the Council for distribution to the universities in accordance with its -- the Council's -- assessment of their needs.

The UCBC, which was established by legislation in 1974 is not a voluntary association of B.C. universities; it is an agent of the crown. It consists of ten part-time members and a full-time chairman, all of whom are cabinet appointees. "Employees or students of the universities" are not eligible for appointment; other exclusions include civil servants in the Departments of Education and Finance. On the other hand, university representatives do sit on the Council's four standing committees: business affairs, capital planning and development, graduate studies and research, and program co-ordinating.

The key questions regarding the financial role of the UCBC are: What criteria does the Council use in making its recommendations about the size of the total grant? On what basis does it then distribute the funds received by it in trust? We know that its powers are discretionary, but it is important to discover also (so far as we can) the manner in which its discretion is exercised.

In this connection it is relevant to note that the UCBC has very broad powers over the planning and development of the university sector, including:

:to require the universities to prepare and forward to the Universities Council plans for the short-term and long-term academic development of the universities...;

:to approve the establishment of new faculties and new degree programmes;

:to require a university to establish such accounting and information systems as the Universities Council considers necessary for the proper conduct of the business affairs of the university;

:to consult with the universities in an effort to co-ordinate their solicitation of money for research;

:to establish evaluation procedures for departments, faculties, programmes, and institutes;

:[through a graduate studies and research committee] to rationalize all matters respecting postgraduate programmes and research in the universities.

All these powers are given potential bite by the Council's role in allocating the public subsidy to the universities, so that the Council could conceivably, under the present law, virtually supplant the boards of governors and to a lesser extent the academic senates of the universities.

Several factors may be presumed to have a bearing on whether or not this ever happens. One of the most important factors is bound to be the attitude of the Council itself. Besides being described as "... for all purposes, an agent of the Crown in right of the Province", the UCBC is charged with the responsibility of acting as "an intermediary between the Government of the Province and the universities, and between the respective universities". It is well known that administrative bodies which are in constant touch with a specific clientele may eventually become virtual spokesmen for the groups they are supposed to regulate or control; and in the case of the UCBC this role is to some extent enjoined on the Council by legislation.

In what proportions will it combine the roles of watchdog, planner, and spokesman for the universities? It appears that up to now the UCBC has actually exercised only a small fraction of the powers assigned it by legislation. On the other hand some of its staff seem (by my observation) to be looking for ways of monitoring what universities do and how efficiently they do it. For them the role of the UCBC as agent of the Crown has swallowed up its other role, that of being an intermediary or buffer.

A second factor bearing on the future role of the UCBC is the evolving relationship between the Council and the cabinet or the Minister of Education. The Council is an executive agency and not merely an advisory body. Thus there may be little likelihood that universities, if dissatisfied with the Council, will do "end runs" around it and appeal directly to the minister. On the other hand the appointment term of the members of the Council is only three years, so that its composition could be substantially modified over a relatively short period of time if relations between it and the Government cooled. In consequence, it seems difficult to imagine a vigorous and effective UCBC that did not have the support of the Government. Thus the universities' capacity for effective political representation may well continue to be important in protecting their autonomy as well as in securing financial resources.

Finally, we should note that there are three formal limitations on the powers of the Council, which exclude it from interfering in:

:the formulation and adoption of academic policies and standards;

:the establishment of standards for admission and graduation; and

:the selection and appointment of staff.

These limitations might seem conclusive; but in view of the finanical role of the Council they might in the future turn out to be barricades of tissue-paper. In its 1977 statement on grant allocations, the UCBC gave notice of its intention

> ... to give particular emphasis to the following matters in its review of the 1978-9 funding requests and allocations:
>
> 1. Establishment of standards for faculty service loads. A definition of a standard service load in terms of hours devoted to teaching, preparation, research, administration and public service should be established. A reasonable balance - obviously varying between individuals - should ensure that faculty members not substantially engaged in research activities of demonstrated quality or high promise, or in other significant non-teaching activity will carry higher teaching loads. Some means of evaluation of quality and promise as well as a means for defining the extent (i.e., the amount) of an individual's research effort will have to be devised to ensure an equitable distribution of faculty service loads.
>
> 2. Recognition of demographic trends. The promotion of an individual to a higher faculty rank and the awarding of a higher salary presumably acknowledges his or her superior teaching and/or research output. The Council views with some concern the prospect that the coming decade of limited growth in university enrolment may result in the aging of a relatively immobile faculty, accompanied by steadily increasing salary costs and without proportionate gains in contribution. A key question:

How effectively will universities carry out their responsibilities with regard to peer evaluations of individual contributions, and will they take action on their findings to insure that opportunities are afforded younger people capable of making a mark as teachers and/or researchers?

3. Reduction of course offerings for which there is little demonstrated demand; elimination of course offerings in disciplines where unnecessary duplication may exist in the Province ...

4. Investigation of new methods of instruction. The Council is of the opinion that the universities may not be directing sufficient attention to the areas of teaching methodology and use of audio-visual and computerized media to provide the student with better instruction while reducing the dependency on such a heavy concentration of manpower in instructional activity. New, automated methods will never substitute for seminars, student research and experimentation, and give and take with stimulating teachers; but much can be done to take advantage of current and emerging technology without losing other values.

5. Protection of the University Position. The conferring of a degree attesting to an individual's level of skill, scholarship, and capacity for thought is the symbol which sets universities apart from other educational institutions. Universities must therefore guide public policy by ensuring that entrance and matriculation standards are maintained at a level which preserves the university degree as a distinctive mark of scholarship and independent thinking ability. If high standards reduce enrolments while increasing the quality of graduates, the net cost to the public could be lower, and the benefit to the university student and the public could be greater. Those who do not meet university standards may still receive post-secondary training at colleges and technical institutes.

To date, the Council's involvement in university policy and practices has not as extensive as this memorandum would seem to indicate. Nonetheless the statement does suggest possible developments for the future where, in spite of legislative prohibition, the Council might conceivably exercise indirect control over academic policies and standards, standards for admission, and the selection and appointment of staff -- all of which are prohibited to it, but are nonetheless obliquely treated in the excerpts quoted above. It is a powerful illustration of how a fully discretionary financing technique has the potentiality for effectively handing over control of the university to an external administrative agency.

For the present, the Council's aggregate request on behalf of the universities remains historically based. "The Council regrets [states of the Funding Recommendations memorandum for 1978/79] that it was still unable for this budget submission to make its estimates other than on an incremental basis applied to the previous year's budget base" (British Columbia, UCBC, 1977: 7). The procedure followed was to:

(a) index the salary expenditure base by 7.25%

(b) index the non-salary expenditure base by 8%

(c) lop off one per cent for "improved use of resources"

(d) adjust for estimated changes in enrolment ($1000 per student: this entailed an aggregate reduction of $261,000 across the system for 1978/79)

(e) add in a flat $1 million for "programs of distinction"

(f) allow an increment for "development and enrichment of existing programs" at one per cent of the base (thus adding in again exactly what was taken out at (c))

(g) and finally, subtract anticipated tuition fee revenue.

This calculation yielded the recommended provincial grant (British Columbia, UCBC, 1977: 9).

After the annual Estimates (a statement of the government's anticipated expenditure requirements) were tabled in the legislature, the sum to be voted for the universities -- only .9% less than the recommended amount -- was parcelled out among them. The Council stated rather baldly, in its report on grant allocations (British Columbia, UCBC, 1978: 2):

> It is the opinion of the Council having regard to the nature and extent of the services currently provided by the universities, that the University of British Columbia merits a somewhat larger share of the operating grant than would be provided by incremental funding based on the historical pattern of the grant allocation. The 1978-79 grant allocation reflects a move to alleviate this imbalance.

What had happened to change the historical distribution ratios was that the Ontario formula had been hypothetically applied to the B.C. universities, and it had been shown that this would have shifted funds to UBC. Allowances were made for economies of scale, but the document which appears to have influenced the decision of the Council made no attempt to justify the Ontario weighting system or to say why a lesser allowance for economies of scale would have been too small, or a larger allowance, too large. In other words, it was an uncritical but partial application of the Ontario formula without explanation of the departures made from it. The Council did acknowledge that, "The 1978-79 allocation process has placed increased emphasis on a program weighting system" (British Columbia, UCBC, 1978: 3); but it did not release the report on which its decision seems to have been based, or (to my knowledge) even publicly acknowledge its existence.

Evidently, the UCBC has little basis on which to exercise wisely the wide discretionary powers which have been placed in its hands by legislation. But it gives every indication of eagerness to expand the prominence of its own role, and to use its control of the purse-strings both in planning the future development of the university sector as a whole, and in the financial management of the system and of the universities individually. The following quotations (British Columbia, UCBC, 1978: 2) speak for themselves:

> In allocating the Provincial Grant among the three universities the Council seeks the maximum benefit to the public of British Columbia arising from the use of the grant. Ideally, each university should receive the financial support which will enable it to function capably in providing appropriate teaching, research and community services.

It is Council's view that in progressing towards this goal, the entire post-secondary education system must be reviewed, and consideration must be given to the following points:

(a) the services which in the context of the post-secondary education system are most appropriate for universities to provide.

(b) the role to be played by each university in the provision of such services.

(c) the services currently provided by universities and the extent to which such services represent an effective use of resource allocations.

. . . . . .

After some agreement has been reached on what should be the future differences in roles and programs of British Columbia universities, further measures can be instituted to refine the allocation process. During the 1978-79 year, the Council requires the assistance, cooperation and agreement of the universities in studying the appropriate academic services to be delivered by each university and in devising a suitable formula to effect an equitable allocation of the provincial operating grant. Such a formula must be sufficiently flexible to accommodate future changes and adjustments in the system.

. . . . . .

Having regard to the universities' internal allocation of the 1978-79 operating grant, and being mindful [sic] of university autonomy in the internal allocation of funds, it is Council's perception that The University of British Columbia's recent operating fund allocations have been overweighted on the side of academic salaries expense, with a consequent impairment of funding for library resources, maintenance of plant and equipment and other non-salary expenditure items. Therefore, in reviewing university operating needs in 1979-80, Council will observe with close interest the extent to which this internal imbalance has been redressed in the University of British Columbia's 1978-79 internal funding allocations. (British Columbia, UCBC, 1978: 1-3).

2.7.2.1

The Council is firmly of the opinion that a better approach to measurement must be found, not only to ensure that our universities are receiving adequate provincial support, but to ensure that each one of our universities receives its appropriate share of the total provincial support.

In the coming year, Council intends to direct its attention to the associated principles of cost and efficiency. Measurement of efficiency can be achieved only on a comparative basis; and after making allowances for differences in underlying cost structures (e.g. regional salary and wage disparities, age of physical plant, size and geographic location), it can be assumed that costs of operating universities should be approximately the same. One must, therefore, look to and assess such empirical measurements as costs per student and costs per graduate. These costs can be identified further in terms of contact hours, available space per student, and student/teacher ratios. In addition, where it is possible, an effort must be made to quantify the effectiveness of research activities.

2.7.2.2 Alberta

In 1967/68 Alberta began distributing a large percentage of its general subsidy to universities by enrolment-based formula. The formula, with modifications, remained at least nominally in place until 1975/76, and even since then its language has been retained although the terminology is more ritual than descriptive. In fact it is doubtful whether one can properly describe the funding of Alberta universities in formula terms since 1970/71.

Some of the reasons for introducing an enrolment-based formula, and the major features of the scheme, have been described by Bernard Sheehan (1977: 22-26) in the following terms:

> In 1966 the Alberta Universities Commission was established with the passage of the Universities Act (1966). In addition to establishing the Commission and assigning to it certain powers and responsibilities with respect to the financing and administration of universities, the Act established The University of Calgary as a separate and autonomous institution and provided for the esta-

blishment of additional Provincial universities. Under the provisions of this legislation, The University of Lethbridge was established in 1967. Thus, for 1967-68 and subsequent fiscal years a new dimension (multi-institutional allocation) was added to the process of Alberta university financing. This, coupled with the simultaneous withdrawal of the Government of Canada from direct financing of universities, made it necessary to develop new procedures for the financing of Alberta universities.

Basic to the techniques and methods developed by the Universities Commission was a mechansism embodied in the Universities and Colleges Assistance Act, which, for each of the years 1967-78 through 1970-71, provided for the determination of an annual level of total operating support (operating grant per full-time student) on the basis of a Commission recommendation for sector support and an estimate of full-time sector enrolment. The Commission's global request was compiled on the basis of operating requests prepared by each university prior to the fiscal year. Institutional grant requests were submitted in formats prescribed by the Commission and these, at least in earlier years, were data intensive. The process by which the Commission compiled these requests and arrived at its recommendation involved considerable review and discussion with institutions, individually and collectively. The review culminated with the forwarding of a Commission recommendation to which the Government responded by setting a dollar level of operating grant per full-time student. Total operating grant support was set on the basis of the total university sector full-time enrolment established by a provincial audit of institutional registration records as at December 1 of the fiscal year.

. . . . . .

Once the total level of support to universities was determined by Government, the Commission's approach to operating grant distribution involved a formula allocation of general operating funds and allocation of non-formula support to programs which, due to their nature, could not be fully accounted for through formula grant determinations. The formula component of allocations to each university was determined on the basis of (1) student numbers expressed as enrolment units, and (2) dollar grant values per enrolment units. This approach

> was an adaptation of the Ontario formula used in determining and allocating operating grants to universities [see Section 2.7.2.5, below].... The non-formula component of the institutional grant recognized the start-up or front end costs associated with new programming efforts and other special and extraordinary areas of requirement which could not be provided for through the volume-related or formula component.

An oddity of this financing technique was that it employed, from 1967/68 to 1970/71, one formula for determining the overall public subsidy to the universities, and another formula for distributing the subsidy (or the larger part of it) among them.

Determining the overall public subsidy. When the Universities Commission had assessed the financial needs of the universities, it divided the total sum by an estimated full-time enrolment figure (making no allowance for part-time students, and without weighting enrolments by academic program); its recommendation to the government was expressed as a dollar figure per full-time student. When, as occurred in 1968/69, actual enrolments considerably overshot the target figure, the legislature had to vote supplementary estimates of $4 million to cover their obligations under the Universities and Colleges Assistance Act.

Distributing the funds available. Each university's share of the total grant was calculated by applying a formula based on "enrolment units" which were weighted differently according to academic program and level. The weights were basically those used in Ontario, and have been reported in Table II-17. In addition, however, a "bonus multiplier" was applied to enrolments at the University of Lethbridge in order to make allowance for higher unit costs at this relatively small institution. The bonus multiplier started out at 1.53 in 1967/68 and was gradually reduced to 1.25 by 1970/71. The procedure for distributing the available funds was as follows:

(a) Various types of non-formula grant, or "first call" grants, were subtracted from the total. The purpose of these grants, in most cases, was to assist in the development of new programs. They were awarded on a discretionary basis, though commitments might be made for a phase-in period of more than one year. Non-formula grants amounted to 5 or 6 per cent of overall operating support.

(b) The remainder was divided by the total number of enrolment units in the three universities, to yield a dollar value for the enrolment unit.

(c) Each university received a formula grant calculated by multiplying its entitlement in terms of enrolment units by the unit value.

The application of the formula from 1971/72 to 1975/76 was erratic. Errors in enrolment forecasting, and the absolute decline in autumn enrolments in 1971 and 1972, resulted in a situation where strict application of the formula would have imposed serious financial hardship on the universities. As a result, in almost every year some ad hoc arrangement was made to accommodate what were judged to be their financial needs. The experience of these years can best be summarized by saying that when the formula produced inconvenient results, a supplementary grant was made to one or more of the universities. In 1970/71, supplementary grants were awarded because actual enrolments fell below estimated figures. This led the government to rescind the Universities and Colleges Financing Act, and to make an annual grant which would be unaffected by errors in enrolment estimates. Beginning, then, in 1971/72, entitlements were based on estimates rather than on actual enrolments. Even so, it was again found necessary in 1972/73 to provide a supplementary grant to allow universities to adjust to lower levels of enrolment and correspondingly pinched financial circumstances.

In the spring of 1973, the Universities Commission was abolished, and the government announced that it was moving to a three-year grants scheme which would respond to the universities' demands for stability and predictability in their incomes. Given that enrolments had been declining for two years, the government appeared generous in announcing that an assumption of stable enrolments would be made for the triennium (i.e., changes in enrolment would have no impact on levels of university funding). An enrolment-unit value for 1974/75 was also set. It was to be increased in each of the succeeding two years by a modest percentage to allow for cost increases (6% for 1974/75 and 5% for the following year). Once again, however, it proved impossible to stick to the announced scheme: in 1975/76 the inflation factor was raised to 17.5% and further adjustments were made to enable the universities to meet a renewed surge in student demand. In the end, university grants went up 30% in

1975/76 (as contrasted with the proposed 5%).

These experiences seem to have soured the government on formula financing, and from 1976/77 onwards, the government has simply decided what percentage increase it can afford each year, and has allocated the available funds to the universities on the basis of the 1975/76 distribution ratio. Each year the universities present briefs to the Minister of Advanced Education and Manpower to describe their financial situation and to request a percentage increase which is invariably greater than the government is willing to allow. What the impact of these "wish lists" is, is hard to tell. One thing, though, is clear: that neither academic development nor changes in enrolment levels have any bearing on the distribution of the provincial subsidy among the universities.

One presumes that the present situation cannot continue indefinitely, and that modifications to the financing technique will become urgent as soon as there are large shifts in enrolment patterns. Not only would the universities like to see a return to some more open procedures and greater predictability in their own revenues, but the government appears (or did previously appear) to be looking for some rule-based financing technique to replace the present system of funding by historical ratios. In 1975 the government commissioned a major study on the financing of post-secondary education in Alberta. The "Financial Plan Project for Colleges and Universities" was headed by Bernard S. Sheehan of the University of Calgary. It produced a number of reports, of which the final one was entitled: A Financial Plan for Alberta Colleges and Universities. It was published in March 1977.

Underlying the recommendations of the Sheehan report -- indeed, basic to the work of the Financial Plan Project -- is the idea that budgeting and planning are inseparable processes and that the government bears overall responsibility for both. The report proposes (pp. 325-355) that general operating grants both to the colleges and to the universities be allocated by enrolment-based formula with only three weight-categories: Lower undergraduate (years 1 and 2, whether taken at university or in one of the colleges), Upper undergraduate (years 3 and 4) and Graduate. The weights to be assigned to each category were derived from actual grants to the institutions during the 1970's, and are approximately: 1 (Lower), 1.4 (Upper), and 3.25 (Graduate).

These weights are acknowledged by Sheehan to provide only a very rough approximation to the past distribution of funds. Indeed, one should expect fairly wide discrepancies. Such discrepancies are caused by a number of factors: cost differentials among the institutions for a given program, different mixes of programs or enrolments, and differences in the kind and level of non-instructional activities. Whatever the explanation of observed differentials, their magnitude is easily ascertainable and can be expressed as a constant or coefficient which is inserted into the formula.

Sheehan has done this. He suggests multiplying weighted enrolments in each institution by an "institutional characteristics" factor, to yield its entitlement in terms of "allocation units". For each institution, then:

$$\text{allocation units} = k[1(\text{"Lower" FTEs}) + 1.4(\text{"Upper" FTEs}) + 3.25(\text{"Graduate" FTEs})]$$

where k is a constant representing institutional characteristics. Each institution's general purpose grant is derived by multiplying the number of allocation units to which it is entitled by a dollar value for that year.

By choosing appropriate values for each institution's "k", the Sheehan formula reproduces fairly closely the actual distribution of funds among the colleges and universities around the mid-seventies. It should be noted that although there is no logic which sets a "right" k-value, its calculation does point to some important features of the funding of post-secondary institutions in Alberta. Differences in the treatment of each institution are clearly identified to facilitate open discussion of the reasons why each institution should have the k-value it does. Are its institutional characteristics those of superior quality, a particularly rich mix of students (e.g., at the graduate level, a relatively large number of doctoral students), cost-factors associated with scale, sheer inefficiency — or what combination of these? A planner/budgeter could decide that the discrepancies in k-values was unwarranted, and could announce a gradual reduction in observable differentials; or he (it?) could decide that a wider differential would better correspond to public purposes, such as the development of top-quality programs at a leading institution, or compensation for unavoidably higher costs in some institutions.

One further feature of the Sheehan proposals is that operating grants be committed to institutions three years in advance. A three-year grant period would increase each institution's "capacity and flexibility to cope with foreseen problems" (p.329).

The government has not yet, after a three-year period, responded to the Sheehan proposals.

2.7.2.3 Saskatchewan

General purpose operating support for university education in Saskatchewan has been and remains allocated on a discretionary basis. For many years the central administration of the University of Saskatchewan presented its case for a public subsidy directly to the Minister of Education. Since the reorganization of the university sector in 1974, however, the two universities have made their requests to the Universities Commission, which is an intermediary between them and the provincial government.

Funding procedures are officially described as follows (Saskatchewan, SUC, 1976, 10-11):

> The Commission is responsible for receiving statements of need from the universities for operating funds, analyzing these statements, and advising the Minister on a consolidated basis of the level of operating support required for the upcoming year. The government is informed of the universities' requests as received, as well as of the Commission's advice. Once the grant is made known the Commission is responsible for allocating it to the universities, reserving what is needed for its own operations.
>
> The process itself occurs over the entire fiscal year, beginning with the presentation of funding request in the Fall, and the allocation of the resulting grant after the legislative vote in the Spring. The process is perceived by the Commission to be consultative, and between each of these major stages are minor stages involving discussions between the Commission and the universities, and the Commission and the government.

The powers of the Commission are similar in scope to those of the Universities Council of British Columbia, though they are spelled out in rather less detail. The

Universities Commission Act of 1974 (Section 6) authorizes the SUC to:

> (c) receive, review, and rationalize the budgets annually presented by the institutions or presented at any other time at the request of the commission;
>
> (d) receive, allocate, and distribute capital and operating funds and any other money allocated by the government for the support of the institutions;
>
> . . . . . .
>
> (i) plan and co-ordinate in consultation with the institutions and interested associations the university sector of post-secondary education in the province;
>
> (j) work with the institutions in promoting co-operative ventures and in co-ordinating existing and future developments;
>
> (k) require an institution to establish such accounting and information systems as it considers necessary for the proper conduct of the business affairs of the institution and require the institution to provide such reports and other information as the commission may desire;
>
> (l) review as it sees fit all capital expenditure projects of the institutions and give authorization for them to the institutions and establish procedures for the review of these matters....

The Act also provides, in terms almost identical to those in the British Columbia legislation, for the establishment of standing committees on business affairs, program co-ordination, graduate studies and research, and capital planning and development. The similarities in the legal position of the two bodies is further revealed in that the SUC - again, like the UCBC - is prohibited from interfering in:

: the formulation and adoption of academic policies and standards;

: the establishment of standards for admission and graduation; and

: the selection, appointment, suspension and removal of staff.

In view of the parallels between the Saskatchewan and the British Columbia legislation, our earlier remarks (Section 2.7.2.1) about the UCBC -- that it could possibly turn into a sort of super board of governors and academic senate for the provincial universities -- might be thought to apply also to the Saskatchewan Universities Commission. The SUC appears, however, to be looking for ways of fulfilling its responsibility towards the government and the public without controlling the allocation of funds within the universities or involving itself in matters such as faculty workloads, size of classes, or the quantification of teaching and research "output".

The financing technique which the SUC inherited at its inception in 1974 was historically based and incrementalist. One of its earliest decisions was to undertake a thorough review of funding procedures with the aim of replacing the existing system with something more rational. The first stage was to survey existing practices in various provinces and in some of the American states, a task which was confided to W. McMinn of Woods, Gordon & Co. The McMinn report, issued in May 1976, showed (in the words of a Commission memorandum), "that there are no easy solutions to the problems of funding universities and that no one is yet satisified with their own answers". Athough McMinn was instructed not to make recommendations, the tone of his report was decidedly sympathetic to the application of business management techniques to university operations.

This appears also to have been the way the Commission was leaning at that time. In February 1977 it struck a Funding Review Committee and instructed it, within six months,

: ... to recommend changes to the funding process which will improve its equitableness, accuracy and credibility, bearing in mind the relative costs and benefits both to the sector and to the province;

: to develop procedures and criteria for assessing the real financial needs of the sector and for evaluating the worth of existing and proposed programs;

: to review the alternate means of allocating grants and make recommendations thereon.

The job has been aborted. The Funding Review Committee, if not actually disbanded, is not functioning, and the SUC continues to base its funding recommendations on historical and incrementalist techniques. Interprovincial comparisons of per-student costs, faculty-student ratios, and other indices which might situate the Saskatchewan universities in relation to universities outside the province, have some bearing on the Commission's judgment about the adequacy of the funding base, which is modified annually for inflation.

It is perhaps too unsubtle to describe this as being, in the Commission's view, a makeshift arrangement; but nor do I think is it wholly misleading. If university costs prove uncontrollable under the present arrangements, or if the parcelling out of available funds between the two universities is publicly condemned as inequitable, more direct methods of control may become necessary. The Commission may be forced, either by its own judgment of what the situation requires, or by mounting political pressures, to take a more direct hand in university management. Present thinking seems to be moving away from this solution to the problems of university funding; but a serious crisis, or prolonged inability to deal with persisting problems, could force a re-evaluation of its approach.

2.7.2.4 Manitoba

From 1967/68 to 1972/73 the larger part of the provincial subsidy to the three universities and the Collège universitaire de St. Boniface was distributed among them by enrolment-based formula. Over the ensuing three year period Brandon University was funded on a block grant and enrolments at the University of Winnipeg were assigned a higher weight than comparable enrolments at the University of Manitoba. It is a matter of verbal preference whether one describes this period as one in which a formula was used. The ambiguity was resolved in 1976/77, when the province reverted to a form of discretionary funding.

2.7.2.4.1 Formula financing, 1967/68 to 1972/73

At no time has Manitoba used a formula for other than distributional purposes. Since 1967/68 the universities have made annual budget submissions to the Universities Grants Commission, which has been responsible for making a recommendation to the provincial cabinet. The Commission is agent of the crown in relation to the universities, and controls a Universities Grants Fund from which it may make disbursals "subject to the provisions of any trust...but otherwise at its sole discretion".

From the amount paid into the fund by the government a portion has been used to cover the operating expenses of the Commission; another portion has gone to make special-purpose payments to the universities (e.g., "first call" funds to meet interest charges on institutional debts); and the remainder has been available for general operating purposes.

In the first six years of the Commission's operations these funds were distributed to the universities according to an enrolment-based formula, although Brandon also received a supplementary grant which was gradually phased out. The total non-formula portion of the grant, including "first call" grants and the supplementary grant, originally amounted to 20 per cent of the total, but it declined to about five per cent by 1972/73.

Even for the early period, one wonders if the formula was not rather a charade. It was the most complicated of the distributional formulas used by any province; it contained 13 enrolment categories and a range of program weights which varied from 1 to 14. The weights were based on a 1966 cost study at the University of Manitoba and, owing to the dominant position of this institution, most of the categories were of relevance only to it. The University of Winnipeg and Brandon University simply did not have a wide enough range of programs to be affected by more than a small part of the formula. They complained -- with some justification if one compares the Manitoba weights with those used in other provinces -- that formula-generated funds were inadequate to their needs. Their complaints were endorsed by the Task Force on Post-Secondary Education in Manitoba (Oliver, 1973, 155):

> Using University of Manitoba cost data to determine the student-program costs for all three institutions assumes that the cost experience of the three universities would be roughly the same. However, the considerable differences among the universities both in size and type of program make this assumption suspect. By using the cost experience of the largest university to determine student-program costs for the two smaller institutions, it is likely that the formula is biased against the smaller institutions since their actual cost experience will not

reflect the same advantages of scale economies as are experienced by the University of Manitoba.

2.7.2.4.2 Going off formula, 1973/74 to 1975/76

Fall enrolments in 1970, 1971 and 1972 fell below forecast levels, and the number of FTE students declined slightly in each of the latter two years. The brunt of the shortfall was borne by Brandon University and the University of Winnipeg, both of which experienced a decline in full-time enrolment in 1970. Brandon ran a deficit, which was met by a special government grant, and in 1971/72 the University of Winnipeg received a supplementary (non-formula) grant from the Commission.

In 1973/74 the formula grant to Brandon was replaced by a block grant determined on a discretionary basis, and the university did not subsequently go back on formula. In the same year, the formula was amended such that the University of Winnipeg benefited from a more generous scale of weights than was applied to enrolments at the University of Manitoba. For example, a "Level II" science student had a weight of 1.8 at Manitoba, and 2.6 at Winnipeg. Thus, the Manitoba universities effectively went off formula in 1973/74, although the Universities Grants Commission continued to present its allocations in formula terms until 1975/76.

In short, as soon as application of the formula began to produce unacceptable results, it was scrapped -- though the Grants Commission was unwilling to admit it. Its reluctance vanished, however, when there was a financial crisis at the University of Manitoba in 1974/75.

In 1973/74 the University incurred an operating deficit of $1.3 million, and by December 1974 it appeared to be heading for an accumulated deficit of $4 million. The Board of Governors stated its "belief that the fundamental problem has been underfunding in recent years", and noted that "academic salaries, compared to those of similar institutions, sank to a very low level position, support staff salaries became uncompetitive and library support sank to the lowest level of any major university library in Canada" as a result of underfunding.

To these statements the Universities Grants Commission responded in February 1975 (University of Manitoba Bulletin, March 5, 1975):

> In all candor, the Commission must question those arguments. Neither interprovincially nor intraprovincially is there anything resembling equality of academic salaries and benefits. In the summary of academic salaries for various ranks across Canada which the University has supplied to the Commission it is not unreasonable to observe that, with few exceptions, the universities where academic salaries are reported to be higher than those at the University of Manitoba are located in the Provinces of Ontario, Alberta and British Columbia -- all known to be affluent jurisdictions in contrast to the Province of Manitoba which is substantially less affluent. University personnel is not the only group of the gainfully employed in Manitoba whose earnings are less than those of similar or comparable personnel elsewhere in Canada. There may well be some differentials in University support staff salaries when compared with employees performing like duties in other sectors of the Manitoba economy. But the summaries provided by the University are inconclusive to the extent that only salary ranges are indicated. It is not possible to make a reasonable judgment in the matter without knowing what the average or median salaries are for all the groups, both within and without the university.

The Commission also noted that full-time equivalent academic staff complements had risen 9.7 per cent between 1971/72 and 1974/75, whereas enrolments and gone up only 3.6 per cent. It expressed its "doubts that a somewhat higher staff-student ratio than currently exists at the University of Mantoba will impair the quality of the services offered by the University".

The University emerged from its financial crisis in a position of virtual receivership. The provincial government gave it a grant of $2 million to cover one half its accumulated deficit, and the Board of Governors was instructed to liquidate the remainder over a five year period. The Commission, which had already opined (in the passage quoted) that the University should not expect faculty salaries in Manitoba to match those in Ontario, Alberta, or British Columbia, and that the University could reduce its staff complements without loss of quality, now stated that it would "assist the Board in determining a balanced budget position for fiscal year 1975/76". It required the University to submit a monthly financial statement to ensure that the approved budget would be adhered to.

Evidently, by this time, not only the credibility of formula financing, but also its desirability, had been wiped out.

2.7.2.4.3 Discretionary funding, 1976/77 to present

One consequence of the financial crises experienced by the Manitoba universities between 1971 and 1975 has been the extension of controls by the Grants Commission over the universities. Controls are imposed through the annual budgetary process, and also by restricting university decisions which might incur liabilities in the future even if their immediate financial consequences are acceptable.

The universities receive an annual general operating grant which in 1977/78 amounted to 85 per cent of the sum voted by the legislature, and in 1978/79, 93 per cent of a smaller legislative vote. The general grant is arrived at after a review of university budgets by the Commission, which makes its recommendation privately to the government and, at a later stage, parcels out the sums made available to it.

University budgets are submitted to the Commission under nine major categories of expenditure, two of which (as described in a Commission circular) deserve special note:

> Academic costs: This consists of the direct costs of instruction including academic staff salaries, instructional aids and supplies, and teaching support services such as laboratory assistants and teaching assistants. This category does not include administrative costs, research costs or space maintenance costs. "In-service teaching programs", innovative programs, "Northern courses", and similar programs should be included in academic costs.
>
> Research: This refers only to research expenditures which are included in the operating budget. It does not include research activities which are specifically funded by external agencies such as the Provincial Government, Federal Government, etc. Fellowships and graduate allocations paid out of the operating budget of the University would be included in the research category.

Since (as is noted in Section 2.4.1,) "research" is defined to mean only that portion of research activity which is not necessary for maintaining instructional standards, the major components of research costs are scattered through other categories: staff time under "academic", library under "administrative support services", space requirements under "operations and maintenance", and so forth.

It will be observed that the budget categories are in no sense related to "mission", function, or academic program. The budgetary process is of the line-by-line type, although perhaps conducted in less detail than this term usually suggests.

Line budgeting is well adapted to an incrementalist form of decision-making, in which there is a presumption that existing activities and objects of expenditure will carry on from year to year with annual increments for rising costs, the historical base perhaps being widened to permit the initiation of new academic programs or the expansion of existing ones. It is also, however, a process which is well adapted to a cost-paring and cost-controlling exercise in which the size of the grant is fixed at the outset and the budget categories merely show how the universities' expenditure patterns will be adapted to the pre-determined amount. Both elements -- university needs as calculated on the basis of the historical record, and government spending guidelines -- necessarily enter into the budgeting decisions, though in proportions that may be estimated differently by the various participants in the process. Consequently, it is scarcely surprising that some university administrators wonder if the process -- which begins with university budget submissions -- is not somewhat ritualistic.

Be that as it may, there can be no ambiguity about the universities' being subject to controls in matters that might incur financial liabilities in the future. The universities are required by statute (1967) to obtain written approval from the Commission for the introduction of new academic programs or the expansion of existing ones. Further, it is the stated position of the Commission that academic development must be accomplished using existing resources. Not only does this mean that the Commission refuses to contemplate expanding the historical expenditure base to permit program innovation, it appears that the limitation applies also to the actual number of academic staff. Evidently, the Commission does not wish to allow a situation to develop in which the universities make commitments which they subsequently point to as requiring additional funds in order to maintain levels of service.

Finally, we should note that there exists a five-year plan for the universities in Manitoba (1977/78 to 1981/82). The Commission undertook to prepare the plan, in conjunction with the universities, in February 1977. Essentially, it is a statement of each institution's existing financial commitments, together with such forecast increases in expenditure as to permit the universities to carry on current operations under inflationary conditions. A Commission circular to the universities, commenting on the need for the plan, reads in part:

> In the early 1980's it is almost certain that university enrolment will decline and will remain in a relatively depressed state for the better part of a decade. The universities and St. Boniface College indicated, in their five-year forecasts, that for operating purposes in the quinquennium 1977-78 - 1981-82 their government grants would have to increase annually at an average rate of better than 21% whereas during the previous quinquennium the average annual increase was approximately 14%. The universities' perception of their needs for government of support of the magnitude forecast and other indicators viz. staff-student ratios; low enrolment courses etc. which were revealed in the forecast data, strongly suggested to the Commission the need for setting a program designed to assist the universities to adjust their operations between now and 1981-82 in order to enable them to meet the enrolment decline in the 1980's without suffering abrupt, dislocative and harmful experiences. Such a program must be planned and, to be effective, it should be mutually agreeable to the universities, the government and the Commission.

2.7.2.5 Ontario

Ontario has had longer experience with formula financing and has applied a formula more consistently than any other province. Even in Ontario, however, the allocation of funds to universities by formula has at all times been complemented by discretionary grants. Moreover, the formula now in use has been desensitized to changing levels of enrolment with the consequence that the distribution of funds among universities is as much historically determined as it is enrolment-related. Indeed, between 1976/77 and 1978/79, the formula was suspended entirely for graduate studies so that changes in enrolment in graduate programmes would have no impact at all on university funding during the period of the "freeze". Moreover, in 1978 the University of Toronto proposed a similar suspension of the formula for undergraduate studies. These are indications of dissatisfaction with formula financing, or of doubt about its suitability in a period of general financial retrenchment, rationalization of academic programming, and declining student enrolments.

One should also note that there have always been administrative controls on the introduction of new programmes at the graduate level. That such controls have been neccessary shows that formula financing has not been really successful in supporting and controlling the development of a university system in Ontario which the provincial government and its advisors have found satisfactory.

2.7.2.5.1 A distribution formula

The formula introduced in 1967 was treated by many of those involved in university finance as a dual-purpose one, which could and would be used to determine overall levels of government expenditure on the universities as well as to distribute available funds among them.

From 1967/68 to 1973/74 the value of the Basic Income Unit was set by the Ontario government on advice from the Council on University Affairs. The grant to each university was determined by multiplying (a) its BIU entitlement by (b) the BIU-value, and subtracting (c) a hypothetical figure representing the income from student fees which the university would obtain if its fees were set at a standard level. The standard level, or "formula fee", was an average of the fees actually levied for each academic programme.

If the BIU level had been set well in advance (and independently of estimated enrolments in the various degree programmes) the formula would indeed have served as a means of determining the aggregate provincial grant to Ontario universities. In practice, however, the government seems to have waited to obtain enrolment estimates before setting the value of the BIU. This enabled it to keep better control of its expenditure liabilities. Naturally there would be some margin of error, as actual enrolments exceeded or fell short of the projected levels; and this margin of error would leave some uncertainty about the size of the aggregate provincial grant. But that is simply to say that the government was using a distributional formula which admitted of some minor uncertainties for the government. There is a big difference between setting grants to the universities on the basis of what the government can afford and (on the other hand) doing so on the basis of an estimate of what the universities seem to require for academic purposes. In practice the formula probably emphasized, even from the beginning, the former of these criteria.

Whatever interpretation one may put on the early years of formula financing in Ontario, since 1974/75 the formula has been unambiguously of the distributional type. The present procedure is that the Ontario Council on University Affairs recommends to the provincial government how much it should spend on the universities and the minister eventually replies with a precise and unchangeable dollar figure. This is what the Ontario Council on University Affairs uses as the basis for a subsequent memorandum advising on the allocation of operating grants to the Ontario universities. The OCUA first determines various non-formula grants and subtracts these from the total. What is left over is then distributed among the universities according to each university's share in the total number of BIU's across the province.

2.7.2.5.2 Non-formula grants

During the first few years of formula financing in Ontario the universities were growing rapidly. In order to encourage their development, the provincial government offered non-formula or discretionary grants to assist in the starting up of new academic programmes. It was presumed that in the first few years of their operation, these programmes would not have enough students to make them financially viable under the formula. This was the rationale for supplementary grants known as "seed money". In addition, there were general-purpose supplementary grants to "emerging universities".

When the Ontario Council on University Affairs began operations in 1974, one of its first priorities was to review the rationale for supplementary grants. In its first annual report (1974/75) it reviewed various criteria which might be employed to justify them. On the matter of university size the Council wrote (Ontario, OCUA, 1975: 13):

> Supplementary support...is based on the reasonable if not precisely verifiable assumption that most enrolment-

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> related formulas do not recognize the minimum level of fixed cost below which a university simply cannot operate as such. The so-called "emergent" grant made by the Province to small institutions until 1974-75 thus attempted to compensate for what would otherwise have been a formula-generated inequity. Four small universities continued to receive supplementary support when the "emergent" grant designation was dropped in 1974-75: Brock, Lakehead, Laurentian and Trent.

In this passage the Council apparently was considering transmuting the grants for emergent universities into permanent supplementary grants for universities that operate on a smaller scale than most other institutions. Its discussion was inconclusive but it did end up awarding supplementary grants based on size considerations to four universities. The grants ranged from less than half a million dollars to almost two million. On the other hand, the Council expressed considerable doubt about other criteria which had been advanced to support the idea of supplementary grants: the mix of professional and general degree programmes, undergraduate versus graduate orientation, and geographical location (but note the existence of "northern grants", discussed below).

In the relatively few years of its operation the OCUA has moved towards the elimination of supplementary grants based on size or other criteria which are awkward to apply. By its fourth annual report (1977/78) the Council was writing (Ontario, OCUA, 1978: 48):

> Council visualizes a future in which any of a number of institutions will face declining enrolments. Size cannot continue to be a factor in awarding supplementary grants because there could be several eligible claimants in the years to come despite the fact that the present formula allows substantial protection for institutions that decline in enrolment. The problem of declining enrolment and institutional adjustment must be faced. Continued special funding for some institutions now, and perhaps more in the future, will not make effective use of the resources likely to be available to the system. Council now wishes to make clear its intention to recommend continued reductions in [supplementary] grants to each institution until the grants reach zero.

The Council's rejection of size and other general criteria as justification for supplementary grants to the universities has not prevented it from continuing special-purpose grants to specific universities in accordance with government policy. Out of the general funds available for the support of Ontario universities, Council continues to recommend grants under two major headings. The first of these consists of "Northern Ontario grants" awarded to Lakehead University and to Laurentian and its affiliates. The other category is that of "bilingualism grants" which are awarded in order to cover additional costs associated with existing bilingual activities in universities offering instruction in both English and French.

There is one further category under which non-formula grants are awarded: the OCUA recommends an annual grant to the Law Society of Upper Canada in support of its Bar Admission Course. It amounts to less than half a million dollars.

In 1978/79 non-formula grants totalled about $10 million. This figure represents less than 1.4 per cent of the total sum allocated on the basis of the OCUA's recommendation. The non-formula grants consisted of: bilingualism grants ($4.5 million), Northern Ontario grants ($3.2 million), supplementary grants ($1.9 million), Bar Admission Course ($.5 million).

2.7.2.5.3 Program eligibility for funding under formula

The Ontario formula is based on weighted student enrolments, but not all students "earn" their universities a BIU entitlement. To do so they must be enrolled in a program which is eligible for funding.

Concurrent with the introduction of formula financing, ministry approval of all new programs was established as a prerequisite of eligibility. However, the definition of which programs were to be considered "new" was left fuzzy, at least at the undergraduate level, where the relative infrequency of new proposals has led to ad hoc consideration of what is new (therefore requiring approval) and of the criteria on which approval will be based. New programs in arts and science are likely to receive pro forma approval unless creation of a new department is envisioned in order to offer a proposed program.

"First professional degree" programs such as education, engineering, law, medicine and various para-medical subjects will have been accredited by the appropriate associations and changes may have to be approved by the relevant government ministry before they can go into operation. Some, such as medicine and engineering, are subject to periodic assessment and are implicitly required to retain accreditation as a whole, although program options which might not receive approval for accreditation do retain their eligibility for funding.

As we noted in Section 1.5.2.5.3, the funding of graduate programs has for more than a decade been contingent upon successful appraisal carried out under the aegis of the Council of Ontario Universities. It was also observed that in 1971 a funding embargo was placed on all new graduate programs until a discipline assessment had been carried out by the COU's Advisory Committee on Academic Planning (ACAP).

Successful appraisal and a positive recommendation from ACAP through the COU (after completion of a discipline appraisal) do not, however, guarantee that a new graduate program will become eligible for funding. According to the OCUA (1978a: 59):

> Since June 1975 Council has repeatedly indicated that funding approval for new graduate programs would no longer be an automatic matter and that Council's own task in the funding approval process would include the "balancing of fiscal realities and new initiatives". For example, it is conceivable that in a given year funding available to the graduate sector might be inadequate to support all new program proposals without harming programs already eligible for funding. Council's response to a situation of this type might well involve postponing recommendations for funding some or all new programs.

Indeed, in 1978 the OCUA ruled that no program will be eligible for funding consideration unless it is already in operation, and students have been enrolled in it. "This reaffirmation of institutional autonomy [sic]", declares the Council, "is designed to demonstrate institutional commitment to, and student interest in, any new graduate program before it may become eligible for public support" (Ontario, OCUA, 1978a: 59).

In response to this ruling the Ontario Council on Graduate Studies (i.e., the Graduate Deans), expressed its concern that (Ontario, OCGS, 1978: 10):

> ...meeting these four criteria will not result in a recommendation for funding approval but will only guarantee consideration by Council and that a positive funding recommendation will not follow automatically. This appears to negate the whole thrust of the Advisory Memorandum and to be inconsistent with Council's basic position that the responsibility for planning should rest with the individual institutions and the collectivity. It also implies that Council has some additional criteria that it may wish to apply at the very end of the process. If this is so, these criteria should be specified now. In a period that combines consolidation of graduate planning and financial constraint the universities should be willing to be bound by strict criteria for funding. But they should know clearly what criteria they can be expected to meet.

Perhaps these objections explain the Minister's reaction to the recommendations of the OCUA on graduate planning and funding. In her letter of December 1978 (quoted in its entirety in Section 1.5.2.5.5, above), the Minister announced that after 1983/84, "Council's and the Ministry's involvement in graduate planning should be limited to verifying that new programs have been successfully appraised". (Note, however, that she also suggested that the universities should "impose upon themselves" the same sort of funding criteria -- most of which have to do with evidence of need -- now applied by the OCUA. This suggestion merely makes the following remark, in the same letter, even more enigmatic: "Universities will have to determine a method of allocating funding amongst themselves that will foster excellence.")

There is considerable uncertainty, then, about the conditions or the procedures which in the longer run will make graduate programs eligible for funding. In the meantime, it can only be observed that the present procedures leave the universities carrying the financial burden for a number of programs now in operation. In its 1978 brief to the OCUA, the Ontario Council on Graduate Studies listed 24 doctoral programs and 44 master's programs on which an OCUA decision was pending; some of them had been enrolling students for several years. The OCUA subsequently announced that it was recommending six of the doctoral programs and 20 of the master's programs for funding, and was withholding judgement on two doctoral programs. Thus there are 40 graduate programs in Ontario for which the OCUA will require further documentation, as set down in its 1977 list of funding criteria, before it considers their eligibility for funding.

2.7.2.5.4 The historical element in the public funding of Ontario universities

It would be unconventional to say the Ontario universities receive about two thirds of their operating grants according to historically established ratios, and most of the remainder on the basis of an enrolment-based formula. Nonetheless this is, I think, a more accurate description than the official one, which retains the language of formula financing while noting that the formula has been desensitized to fluctuations in enrolment.

The distinction is not merely verbal. As has already been emphasized, the idea behind enrolment-based formula financing is that university incomes should be related to enrolment partly on equity grounds and partly in order to leave the universities with a large measure of autonomy in program development and other academic matters. Formula financing, in its pure form, is like a fee supplement scheme: the universities are left to decide how successfully they can market their services, and to take the knocks if they forecast the market wrongly. By contrast, funding purely according to historical ratios eliminates almost all the risk, and offers maximum assurance of stable funding for existing facilities and ongoing programs of instruction and research (especially if overall levels of funding keep pace with inflation). However, it has the disadvantage that it is likely to stultify development and cannot vary financial support to accommodate new initiatives in research and in academic programming; nor does it impose any penalty for decaying standards of performance. It is vital to note that current funding arrangements in Ontario combine in about equal proportions these two largely antithetical principles (funding according to instructional services rendered, and income stability) for the financial support of the universities. This may be desirable, but it is certainly not formula financing unalloyed.

The introduction of the historical element into the public funding of Ontario universities occurred by the following steps:

1973/74 Beginning of "slip-year" accounting of enrolments: each university's BIU entitlement henceforth was to be based on the previous year's count, not the current year's. This change simply meant that the universities were not already well into the financial year before their income was known.

1976/77 Suspension of the formula with respect to graduate studies for a minimum period of two years (subsequently extended to three, i.e., to and including to 1978/79). The decision to do this was based on recognition of several of the problems associated with formula financing, and it is consequently worth quoting the OCUA's reasons for making the recommendations (Ontario, OCUA, 1976: 35):

> First, Council adopts as its own the concern expressed by the Commission on Postsecondary Education in Ontario that the long run future of universities, be they large or small, is not necessarily best served by a formula arrangement that associates both teaching and research costs with numbers of graduate students.
>
> Second, Council...is abundantly aware of the need to ensure that the development of new graduate programs not take place at the expense of the financial viability of the university system as a whole.
>
> Third, in that this need indicates a rationing in the distribution of existing programs to permit new program development, Council wishes to ensure that whatever steering effects in the present formula encourage program proliferation be neutralized.
>
> Fourth, Council deems it highly desirable to foster an atmosphere at the level of Presidents and Boards of Governors in which the forward planning of graduate work within individual institutions can be freed from short-run revenue considerations.

Fifthly and finally, Council wishes to foster an atmosphere in which planning can proceed at the system-wide level in like freedom from such considerations.

1976/77 Enrolment averaging for undergraduate studies announced. In 1976/77 the BIU entitlement would be based: one-third on the 1974/75 count, and two-thirds on the 1975/76 count. Thereafter a three year rolling average would be used. This would make university incomes respond more sluggishly to fluctuations in enrolment; but there would be no permanent discounting of growth (or decline) in enrolments. It would simply give each university a longer period of time in which to adjust if enrolments dropped.

1978/79 Permanent discounting of enrolment changes in undergraduate programs introduced. Henceforth, in calculating BIU entitlements, equal weight would be given to the count in the years 1974/75 to 1976/77 (the "funding base") and to the three-year rolling average immediately prior to the current financial year. The significance of this arrangement is described by OCUA in the following terms (Ontario, OCUA, 1978a: 30-31):

This means that institutions which experience undergraduate enrolment increases post 1976/77 will, after three years, receive a maximum of 50% of the operating revenue that would otherwise be expected were funding allocated on a direct per capita basis. Conversely, institutions which experience undergraduate enrolment declines will lose a maximum of only 50% of the funding associated with the lost enrolment. Herein lies the stability feature of this allocative mechanism for, in the extreme case, an institution which had no enrolment whatsoever at the undergraduate level beginning in 1977/78 would receive funding on the basis of 50% of its average enrolment in 1974/75, 1976/76, and 1976/77.

1979/80	Graduate funding placed on a basis similar to undergraduate funding, except that in the case of doctoral programs the "funding base" would be weighted at two thirds, and the three-year rolling average would count only for one third. This was justified by OCUA on the grounds that "doctoral programs may be considered to have been generating the greatest support for research and scholarship" (Ontario, OCUA, 1978: 61). The scale of these activities, according to the OCUA, ought not depend upon enrolment levels.

Thus, over the past six years, Ontario has introduced a strong historical element into the public funding of its universities.

It is perhaps a little easier to understand the significance of the current funding arrangements if we look at dollar figures, and do not limit ourselves to verbal presentations of algebraic formulas. Looking at "the bottom line" we may say:

--The students enrolled in Ontario universities from 1974/75 to 1976/77 will continue to earn their former universities, as long as current funding arrangements last, a fixed BIU entitlement. In 1978/79 this entitlement was worth approximately: $1,300 for each arts undergraduate, $3,900 for each M.A. student, and $10,300 for each Ph.D. student.

--Each current student also earns the university a subsidy in the form of a government grant. Only a portion of the subsidy is received by the university in the year(s) in which the student is actually enrolled, because of averaging provisions. However, disregarding this feature of the formula, at 1978/79 BIU values and fee levels, the annual subsidy was: $600 per undergraduate arts student, $3,100 per M.A. student, and $4,400 per Ph.D. student. (These figures are lower than the ones above, even for undergraduates and M.A. students, because "standard fees" are deducted from the university's subsidy.)

A final observation: it is an implication of the above figures that, as a university's enrolment declines, an increasingly large percentage of its provincial grant will be based on historical distribution ratios. This will be true for universities individually, and across the system.

2.7.2.6 Quebec

Universities in Quebec are funded in accordance with a set of rules in which the historical element is very strong. Each institution's grant is based on its budget for the previous year (excluding items which are supposed to be self-financing, such as ancillary enterprises). Adjustments are made for inflation, enrolment changes, non-government revenues (mainly fees), and other factors. This procedure yields an estimate of the university's financial requirements for the year, and -- subject to across-the-board budget cuts -- the public subsidy is set at that level. The aggregate of the grants so determined is a first approximation to the level of provincial spending on the universities, which is fixed in accordance with cabinet decision.

The participants in the process are:

--the Ministry of Education, which publishes the rules for determining the grants, and does the calculations;

--the Cabinet, which dictates policy on matters such as the allowance to be made for inflation and for the expansion or contraction of student numbers;

--the universities, which supply the necessary data on previous years' budgets, enrolments, etc.;

--the Conference of Rectors and Principals of Quebec Universities (CREPUQ), which participates in the process as the organized voice of the universities, making submissions about items such as indices of university costs and other matters affecting all universities equally or comparably; and

--the Council of Universities, which the law requires be consulted: it offers an official, public and detailed opinion on the various items which enter into the calculation of the grants, as well as on the wisdom and fairness of the procedures themselves. The Council, it should be noted, has been successful in persuading the government to change certain features of its policy even after the rules have been published in draft form.

The main features of the current granting procedure were introduced in 1969/70, although each succeeding year has seen some revisions in the regulations. The largest change occurred in 1977/78, with the inception of program budgeting (PPBS). Even then the process itself was not much affected, though the terminology in which it was henceforth described was spanking new.

The granting procedure is too complex to describe in detail here (it is set out in regulations which run to some 50 single-spaced, legal size pages), but our purposes will be served by an abbreviated description of three phases:

1) revision of the base, i.e., of the "admissible expenditures" in the university's budget of the previous year;

2) rule-determined or mechanical adjustment of the revised base; and

3) inclusion of any increments allocated on a discretionary basis ("additional requests").

First Phase: Revision of the base. The calculations in this phase produce an inflation-adjusted version of the main items in the university budget of the preceding year, while deliberately making no allowance either for growth or development. Some items, however, like fringe benefits for staff, are not taken into account until the next phase.

The first step in revising the "base" is to group the relevant items under four headings: faculty salaries, salaries for professional employees other than faculty, salaries and wages of support staff, and non-salary items. Each of these four items is then indexed at a rate prescribed by ministerial or cabinet decision. In practice, this has meant a fairly generous increment for salaries and a very small increase in the notional figure for non-salary expenditures. The four budget categories, as indexed, are added up; expected revenues from non-government sources (for detail, see Section 2.7.2.6.5, below) are subtracted; and the remainder is a revised base figure for the current year's grant.

Second Phase: Mechanical adjustments. These are of two types: modification of the base to allow for changes in enrolment, and the addition of those items hitherto excluded from the calculation. No account is taken at this phase, of new academic programs or other forms of university development.

Throughout the 'seventies, the Quebec government included in its aggregate grant to the university sector an allowance for increases in enrolment. The allowance was originally fully proportional to actual growth in the system, but in more recent years both growth and shrinkage have been partially discounted (for more on this, see Section 2.7.2.6.3, below).

Other "mechanical" (or rule-determined) adjustments are made to the base, by adding in the items hitherto left aside. These are of various types, and include:

--fringe benefits for faculty and staff (the allocation for fringe benefits is, like that for the various salary items, determined on a historical basis, as modified by indexation);

--items apparently beyond the university's financial control, such as certain borrowing costs, municipal taxes, and rental of buildings already approved by the ministry (to house existing operations);

--costs of certain programs or activities already approved by the ministry on a multi-year basis, for example: (a) imputed costs of running the nonteaching components of the Université du Québec; (b) already promised start-up grants for new academic programs; and (c) estimated running costs of programs of special interest to the government (such as the training of language teachers, essentially a fee-for-service contract); and

--correction of errors in the calculation of grants for previous years.

Third Phase: Additional requests. These are requests for development, that is, either the initiation of new programs or activities, or the accelerated development of programs and activities already approved. The Ministry of Education responds to these requests in a purely discretionary manner, although for the initiation of new academic programs its discretion is shared by the Council of Universities through the Comité conjoint des programmes (see Section 2.7.2.6.4, below).

The sums involved at the "additional requests" stage are not large. For example, in the fiscal year 1977/78 a total of only $4 million was set aside for meeting them. This sum was allocated to sub-categories as follows:

--$ .8 million for research programs and training researchers (an augmentation of the resources for the F.C.A.C. program: Formation des Chercheurs et Action Concertée -- see Section 2.4.2.2.3, above);

--$ 1.5 million for rental of additional space on leases approved by the ministry;

--$ .6 million for new academic programs (start-up funds);

--$ .5 million as a supplementary grant to finance doctoral programs: an additional $1000 per fulltime doctoral student;

--$ .6 million as a supplementary grant to the Ecole de Technologie Supérieure.

The $ 4 million total represented less than one per cent of the aggregate 1977/78 general-purpose grant, and the startup funds for new academic programs ($ 600,000) constituted only about one tenth of one per cent.

* * *

Several features of the process for determining grants deserve elaboration and comment. Such comment is provided in the seven sub-sections which follow: (1) the impact of the granting procedures on the size of the aggregate grant; (2) how the indexation of salaries and other budget items affects the universities, and their capacity to shift funds from one budget category to another; (3) the impact of enrolment changes on the aggregate grant and on the distribution of available funds among universities; (4) the relationship between the planning process for the university sector, and the granting or budgetary process; (5) the treatment of income from gifts and endowments; (6) the distribution of funds within the Université du Québec, and its position relative to the other universities; and (7) some comments and complaints about the operation of the financing technique, as voiced by individual universities and by the Council of Universities.

2.7.2.6.1 The level of government spending

The granting procedure used in Quebec not only determines the distribution of available funds among the universities, but has a large impact on the size of the aggregate grant.

Until 1979/80 the historically based formula which has been briefly outlined was a dual-purpose one which not only determined the distribution of funds among the universities, but determined the level of government spending on the university sector. In principle the government still retained control over this item in its budget, because the key item in the formula is the rate of indexation of salary expenditures, a rate which in practice has been set by the Minister of Finance.

However, the allowance for salary increases in the universities has been the same as in the public sector as a whole, and in this matter the government has been less than a free agent. It has necessarily acted under the constraint of collective bargaining with unions of public employees in sectors, such as the hospitals, where a work stoppage has much sharper and immediate consequences than in the universities. Consequently, by far the largest item in university budgets has been indexed at a rate determined by non-educational considerations, through a bargaining process in which the university administrations and university faculty unions have been only minor participants, if they have been involved at all. Once the salaries policy has been set for the public sector, the government has had little freedom of manoeuver left regarding its grants to universities. Non-salary expenditures are too small a percentage of university budgets to hold down the total very much.

There are three devices to which the government has had recourse in an attempt to hold the line on its operating grants to the universities.

--Discounting growth in the system. From the inception of the formula, the rules for determining operating grants for each institution have made less than full allowance for enrolment changes -- that is, an enrolment increase of 5 per cent would induce less than a 5 per cent increase in the university's allotment at the stage of "mechanical adjustments". However, until 1979/80, growth in the system as a whole was not discounted; it was merely distributed among the universities non-proportionately to enrolment changes (see Section 2.7.2.6.3, below). This policy changed in 1979/80, when the government made only a 50 per cent allowance for growth in the system, and even the 50 per cent rate was a concession made after an intervention from the Council of Universities, which had strongly criticized an initial proposal to make only a 25 per cent allowance for growth. The substance of that intervention was that greater allowance for growth was necessary in order to support the policy of maximizing access to university.

--A minimal response to "additional requests". The government is under no obligation to allocate any funds for this category of expenditure, and in practice the sums allocated under this heading have been very modest in recent years.

--Across-the-board budget cuts. Such a cut occurred in 1979/80, when the rules pertaining to enrolment changes within each institution dictated an aggregate increase of more than 50 per cent of growth in the system. A total of $5.8 million was cut from university budgets, prorationed across the system, to keep total allocations within the limits set by the government.

2.7.2.6.2 Indexation: impact on the universities' financial position

Indexation of salary budets seems, at least superficially, to be a bonanza for the universities. In reality it has been more a bonanza for the faculty and staff.

Unionization of faculty as well as of professional and support staff has proceeded relatively far in Quebec. With collective bargaining, and with the rate of indexation of salary budgets being public knowledge, the university administration could scarcely concede lesser percentage increases than the index figure suggested. As a result, although the universities do have the legal right to transfer funds from the salary budget to non-salary categories, in practice their freedom to do so is severely limited. The need to do so, however, has been pressing: in recent years the indexation of non-salary items has been well below the rate of inflation.

Universities in Quebec have thus been under the same sort of financial squeeze as have universities in other provinces, and there has been a consequent running down of equipment and diminishing standards in areas such as library services, maintenance, and secretarial assistance. The universities have tried to make up for the deficiency of non-salary budgetary resources by permitting attrition of staff so that, while salary increments match (at least on average) the index figure, some funds are left over to transfer to other purposes. This has, perhaps, been made rather easier than in other provinces because enrolment has been growing and the universities have been at least partially compensated for growth.

2.7.2.6.3 Enrolment changes: impact on the universities' financial position

It will be recalled that until 1979/80 growth in the system was fully compensated, though the distribution of the additional funds among the universities was not proportional to enrolment change. The re-allocation rules have been complex.

Until and including 1975/76, enrolment changes in each university were weighted at half value and a corresponding "mechanical adjustment" to its "revised base" was made. After doing this, there was still an approximately equal increment to be distributed among the universities in some other way. The device chosen was a per-student grant which varied in magnitude with total, not incremental, enrolment in the university. The smaller institutions received a larger "per capita", so that in effect financial resources were transferred to the smaller universities each year, augmenting the base for the calculation of their grants in subsequent years.

One consequence of this policy was to discount growth in the larger (and, for the most part, the longer-established) universities, and to place a premium on growth in the smaller ones. Another consequence was to reduce the adverse financial impact of a decline in enrolments in an individual institution as long as the system as a whole was growing. (Growth in the system meant that money was available for the "per capita" increment, even for a university with stagnant or declining enrolment levels.) This was important for the English-language universities, which were adversely affected by the creation of the college system (the CEGEPs). Graduation from a CEGEP became, over a phase-in period from 1969/70 to 1972/73, a prerequisite for admission to university. Since English-speaking students who went to the new colleges previously had gone directly from high school to university, the transition period resulted in a temporary drop in undergraduate enrolments (about 15 per cent) at the beginning of the decade. By 1973/74, however, the English-language sector had again reached its 1969/70 level. In the meantime, the "per capita" increment helped the English-language universities substantially.

Starting in 1976/77, the ministry began to discount growth in all universities (not just the larger ones). It also abolished the per capita increment and its cushioning effect. For the year 1976/77, full allowance for growth was permitted in the case of the faculty salary budget, but in the other three major budget categories growth was discounted at a 50 per cent rate. In the following year (1977/78) the differential treatment of budget categories was dropped, and growth was discounted by 25 per cent (i.e., a 75 per cent allowance was made) across the board; in 1978/79, the figure was 50 per cent. The money "saved" in this way was distributed on a discretionary basis, in the form of grants to meet "additional requests". Thus, from 1976/77 to 1978/79, growth in the system no longer supported a general exapansion in the financial resources of the smaller institutions, but was transmuted into financial incentives -- or compensation -- for development.

A further significant change occurred in 1979/80, when overall growth in the system was discounted at 50 per cent. In order to encourage the universities to recruit new students, thus presumably raising participation rates and improving access to university, each institution was awarded a supplement to its "revised base" according to the rate of increase of its enrolments relative to average enrolments over the preceding three years; a decline in enrolments was treated similarly. Within each institution, enrolment changes produced a budget supplement, or a budget cut, according to the following schedule: enrolment changes between

0% to 4% -- counted at 25%
4% to 8% -- counted at 50%
8% and up -- counted at 75%

Since growth in the system was concentrated within the Université du Québec and the Université de Montréal, and the basis for comparison was an average of the preceding three years, this schedule of allowances for enrolment changes resulted in more than the 50 per cent aggregate allowance for growth relative to 1978/79 decreed by the cabinet. The overrun of $5.8 million was, as noted above, recouped by prorata cuts in all university operating grants at the final stage in the calculation.

The discounting of enrolment changes within the system as a whole is of course a disadvantage during a period of growth, but would redound to the universities' advantage in the case of any overall decline in enrolment. Such a trend is not envisioned for the next few years, but its possibility -- indeed, in my own opinion, its probability -- cannot be dismissed (see Sections 1.5.2.6.4 and 1.5.2.6.5, above). Enrolment forecasts do vary (see Section 1.5.2.6, above), and the universities cannot afford to rely heavily on the most optimistic of them even if its assumptions seem more realistic than those which inform the gloomier predictions. It should be recognized that even the currently "most likely" scenario is based on chancy events.

Because of uncertainties about future enrolments, it would, in my view, be in the interest of the Quebec universities to endorse changes in the financing technique which would either free the aggregate grant entirely from enrolment changes, or would at least relate it to a moving average of enrolments over the past three or more years, rather than to the previous year alone.

Such averaging has, as was noted above, been introduced in respect of the distribution of the aggregate grant among individual institutions. The principle of doing this has been endorsed by the Council of Universities. The practice has an obvious advantage for any institution which may be adversely affected by demographic trends or by other factors affecting enrolments, whether among part-time or full-time students.

2.7.2.6.4 Planning, granting procedures and university autonomy

With the introduction of program budgeting in 1977/78 there was ostensibly an integration of planning procedures with the annual review of university grants. The idea of program budgeting is to ensure that the costs of achieving certain objectives are clearly identified. This makes it easier for decision-makers to query the wisdom of maintaining programs whose benefits or achievements do not appear commensurate with the costs. It also, when there are several institutions or agencies doing comparable things, may help to identify those units which are less efficient than others. What program budgeting does, then, is to identify operations which are too costly to perpetuate, whether because of inefficiencies, changing priorities, or whatever.

One feature of the changes introduced in 1977/78 was the lengthening of the granting procedure to occupy a three-year time span. The first phase consists in the formulation of three-year development strategies, a planning phase which occupies the five months or so before the initiation of the procedures which have been described above. This initial phase is marked by an interchange between the Ministry of Education and the Council of Universities concerning the problems faced by the university sector, the coordination of the activities of the various institutions, and the selection of appropriate lines of development for each. Any amendments to the regulations for the allocation of funds are also worked out at this time.

Changes in the regulations are certainly potentially important -- it depends on the extent of their revision -- but hitherto there does not seem to have been much other significance to the phase of formulating the three-year strategies. The process could easily be given real bite, if it were once decided to revise the base of the budget calculations by striking out certain items from the list of admissible expenditures. For example, the estimated costs of an academic program could, if the program were judged superfluous, be subtracted from the university total. Such an action would have a cumulative effect over the years. (Once the historical base is modified, the change is perpetuated by subsequent annual adjustments.) A rigorous application of the principle of excising "unjustifiable" costs from the base would transform an incrementalist budgetary process into a zero-based one. Although this is the point of program budgeting, no steps have been taken to use the technique for the purposes which are its raison d'être.

Discretionary modification of the base would, however, be a rather heavy-handed way of doing what might be accomplished with more finesse by another means, at the stage of "mechanical adjustments". At this stage, it will be recalled, the "revised [indexed] base" is modified to account for enrolment fluctuations. One of the curiosities of the grants procedure in Quebec is that, notwithstanding the complexity of the whole exercise, there is no systematic audit of the student count submitted by each university. This makes it impossible for the ministry to require the exclusion of students who are enrolled in programs which have not been approved by the Comité conjoint des programmes (see Section 1.5.2.6, above) at the time of their introduction. The same goes for students in programs which might be declared ineligible for support after a review process by discipline grouping ("les opérations sectorielles"). If an audit of the student count is eventually introduced, however, it would be easy to include some students and not others, depending on the programs in which they are enrolled. The university grant would be modified accordingly. Such a move, a very minor modification one in view of the existing procedures, would thoroughly integrate the planning and the granting processes.

This has not occurred. Policy pronouncements are sonorous with the solemn language of global development strategies; the budget process is lengthy, complex, and rule-heavy; and the structure of interlocking committees is a veritable maze. Through this bureaucratic tangle the universities wend their way, still enjoying a higher measure of autonomy than do those in most of the other provinces.

2.7.2.6.5 Gifts and endowment income

One of the features of the funding procedure used in Quebec is that university revenues from fees, gifts and endowments, and some other sources (excluding research grants) enter into the calculation of the government grant. The difficult case here is that of gifts and endowment income (see Section 2.5, above).

Since 1974/75, the Quebec policy has been to permit universities to disregard, in their statement of revenues, any income from gifts and endowments when these have been earmarked by the donor for a specific purpose. For income from benefactions which are not restricted in this way, the universities are required to report one half of the total as university income, to a maximum of one per cent of its expenditures (excluding ancillary enterprises). This ceiling is, in practice, ineffective, as no university has non-earmarked benefactions income greater than 0.25 per cent of its expenses.

2.7.2.6.6 The Université du Québec

Although the Université du Québec has public status while the other universities in the province are, juridically speaking, private institutions, the same granting procedures apply to all universities; the Université du Québec occupies no special position. It receives, on behalf of its member institutions, the provincial grant, which it then allocates among them according to its own rules.

It will be recalled that the university is composed of five general-purpose and five special-purpose institutions. The former are the "constituent universities" at Montreal, Trois Rivieres, Chicoutimi, and Rimouski, plus the Centre d'études universitaires dans l'ouest québécois (CEUOQ: Hull and Rouyn). The special-purpose institutions consists of a number of research institutes grouped into the Institut national de recherche scientifique (INRS), the Institut Armand Frappier (microbiology), the Ecole nationale d'administration publique, the Ecole de technologie supérieure, and TELUQ or television-university.

The grant which the University receives on behalf of the general-purpose member institutions was, until 1977/78, calculated as an aggregate of what these institutions would have received had each been a separate and independent institution; since that year, the University has been treated for grants purposes as a single unit. However, it receives a special subsidy for its central administration. A portion of the total grant is used to finance the University's headquarters in Quebec City, and the remainder is redistributed to the its universités constituantes and the CEUOQ. Originally this was done on the basis of a formula which favoured the smaller institutions; but since 1977/78 it has been done on a historical basis, comparable to the grants formula used by the province. Since the internal allocation is historically based, however, the favoured position of the smaller institutions is perpetuated. This has caused the largest of the constituantes, UQAM (Montréal), to complain that it is disfavoured by having to subsidize the operations of the rest of the Université du Québec. (Le Devoir, 17 June, 1978).

The special-purpose member institutions receive grants more specifically earmarked for them by the Ministry of Education. These are channelled through the Université du Québec's central budget office.

2.7.2.6.7 Summary comments

The main features of the current funding arrangements for the Quebec universities have been in effect for almost ten years. Although the regulations have made allowance for both the development of new programs and the growth in scale of existing ones, the present distribution of funds among universities still reflects to some extent the situation as it was in 1969/70. Such inequities as there may then have been are perpetuated and indeed magnified by the practice of funding the universities on the basis of modified historical ratios. In addition, new inequities arise as the character of individual institutions changes. Although it was possible to overlook these disadvantages as long as the universities were growing rapidly, this will become increasingly difficult to do as enrolments level off and perhaps decline.

One inequity in the funding arrangements stems from the initially different treatment of full and part time students. Until 1971/72, part-time students were not included in the student count; thereafter their numbers were translated into full-time equivalents (FTE's), and allowance for growth was made on this basis. This change, however, could not eradicate the consequences of inadequate compensation for part-time student costs in the first place. As a result, universities with a large proportion of such students have been disadvantaged. This has been a particular grievance of Concordia University; indeed, the grievance has been acknowledged as justified by the Ministry of Education. A planned compensatory adjustment to the base for the calculation of the 1979/80 grant was, however, shelved (at least temporarily) because of overall budget restrictions imposed by cabinet decision.

On a more general plane, it deserves note that if funds are available, any inequities built into the base, if acknowledged by the ministry, could in principle be resolved by its upward adjustment in the case of the institution(s) affected. Thereafter, the practice of funding by historical ratios would take care of the original problem. One difficulty with such patch-up work, however, is that the government must admit that the system has indeed been treating one or more institutions unfavourably. Changes must be made on a purely discretionary basis, and it is unlikely that, in general, the grievances of any one institution will be accepted by the rest as justified. This form of remedying the ills of the historical method of funding therefore has distinct limitations.

A more serious problem arises when academic development occurs. This changes the character of individual universities. Under an enrolment-based formula (with multiple weights) such changes automatically affect each university's share of the funds available. Historically rooted financing techniques, however, lack this means of accommodating change. It is their most serious drawback.

In the grants regulations hitherto used in Quebec, any one FTE student is "worth" as much to the university as any other FTE student. In the annual student count, it makes no difference if enrolment changes are due to growth (or shrinkage) in doctoral programs or in undergraduate studies -- or in music, engineering, or philosophy. This feature of the regulations has put a premium on the recruitment of large numbers of students for the less expensive academic programs. It has inadequately compensated universities for graduate work and for programs with large needs such as laboratory facilities and opportunities for clinical work. A result is that, if a university does develop in these areas, it must finance such costly programs from the general ones, in which students can be crammed into large lecture halls, given little or no personal supervision of their work, or otherwise left to shift for themselves. This is scarcely consistent with the extension of educational opportunity, or with academic excellence.

The situation is, of course, less severe for those universities which had already developed programs of the more costly sort when historical funding was introduced; if they were adequately funded then, they will continue to be adequately compensated as long as the "mix" of students and programs does not change.

This is not so for the developing university, which needs to branch out into new and often costly areas of instruction and accompanying research. In Quebec, this has been a particular grievance of UQAM; but the individual case merely points up an unsatisfactory element in the technique of funding by modified historical ratios. In Quebec, at least, the very modest allocation of funds for new programs has placed a burden on the developing university. It is a burden which may perhaps be borne as long as enrolments are on the rise; but the same does not apply in a period of the "steady state" or contraction. If Quebec continues to adhere to its present funding practices, it will depress standards of performance all 'round, and lock the universities into their existing roles.

The incapacity of the historical method to compensate for and to encourage academic development has been noted both by the ad hoc Commission d'étude sur les universités (Quebec, CEU, 1979b: I, 23-4) and by the Council of Universities (Quebec, CU, 1979: 129; and 1980: 286-7). Both bodies have proposed substantial changes in the method by which Quebec supports its universities. The Commission has endorsed an Ontario-type formula for the support of teaching and research costs and other techniques for other categories of expenditure (Quebec, CEU, 1979b: I, 44-5). The Council, responding to this recommendation, in a less detailed but more reasoned statement, voiced its support for a number of features which a new financing technique should incorporate (Quebec, CU, 1980: 281-2). The Council makes no recommendation on overall levels of support for universities or how to determine such levels of support; regarding the distribution of the aggregate grant among the individual institutions, it appears to favour an enrolment-based formula which would finance all major categories of expenditure other than ancillary enterprises. As features of the new method (yet to be worked out), the Council proposes:

--the averaging of enrolments over a two or three year period preceding the budget year in question;

--allowance for different cost-levels for different levels of study (graduate-undergraduate etc.);

--taking account of research activity, "size" (presumably of institutions, but perhaps of individual programs) and other factors; and

--discretionary grants on top of formula grants to respond to special needs, conditions, or situations.

Were these principles to be adopted, Quebec would be taking over the main features of formula financing in Ontario as it existed prior to the introduction of the very heavy historical component which has been a key feature of Ontario arrangements since the mid-1970's.

2.7.2.7 The Maritime Provinces

Prior to the creation of the Maritime Provinces Higher Education Commission (MPHEC) in 1974, both Nova Scotia and New Brunswick used an enrolment-based formula as partial guide for distributing general operating grants to the universities. Prince Edward Island employed the discretionary method.

The MPHEC's mandate, as was noted in Section 1.5.2.7, is to develop higher education in the Maritimes on a regional rather than a provincial basis. The allocation of funds to the institutions is obviously an important instrument which the Commission has at its disposal to implement its mandate. Recognizing this, the Commission sought to take a regional approach to funding by (a) using its own enrolment-based formula for distributing operating grants to the institutions, and (b) devising another formula to apportion the cost among the three provincial governments. We have already noted the partial abandonment of the second of these intentions; and the Commission has not been noticeably more successful in relation to the first.

The main obstacle to making the transition to formula financing on a regional basis has been that the Commission inherited responsibility for institutions from three provinces. The institutions had been funded at different levels. Immediate application of the formula, with the weights indicated in Table II-17, would have reduced the grant to some institutions and given a very large increase to others. Accordingly, the Commission decided to phase in the formula over a period of years, in such a way that the hitherto more favoured institutions (if the judgment be made using the formula as a guide) would receive only small increases, while the less favoured ones would be given larger increases to bring them up to the level of funding to which the formula entitled them. The problem with this plan was that the annual increases in the aggregate grant, as determined by the Premiers, were so small that the Commission made little headway in making the transition to formula financing.

In April 1977 a Commission document described the procedure for allocating operating grants as follows: (MPHEC, 1977: 32-3):

> The Commission has adopted an allocation mechanism by which grants to institutions may consist of three components -- a Basic Operating Grant, an Enrolment Grant and possibly a Supplementary Grant.
>
> --The Basic Operating Grant is a fixed portion of the operating grant that on average represents approximately 70% of an institution's total grant. It is determined by considering such items as the full-time equivalent enrolment of the previous year on a weighted basis, institutional characteristics, and historical patterns of funding. Having a significant portion of operating assistance in the form of a fixed grant has received widespread support because it stabilizes funding in the short-run by reducing the impact of minor variations in enrolment and because it reduces the "steering" effects associated with formula financing that is completely enrolment based.
>
> --The Enrolment Grant is determined by a multi-step process. Institutional enrolments are weighted according to a system of programme weights adopted by the Commission in consultation with the institutions. The resulting weighted full-time enrolment is then multiplied by a unit grant to yield the variable enrolment grant. Beginning in 1977/78, the Commission has decided to take the previous year's enrolment as the base for calculating the variable enrolment grant. Such a process adds further stability to institutional funding and eliminates uncertainties regarding exact levels of operating assistance during the year.
>
> The weighting system which influences the basic operating grant is expected to approximately reflect relative costs of the various programmes. It will be modified as and if changes become evident.
>
> --Supplementary grant components have been included in the allocation to certain institutions to support specific, non-normal requirements, such as debt servicing related to previous commitments.
>
> In allocating available operating assistance to institutions according to the above formula, the Commission has also made some effort to move gradually and progressively toward regional standards for funding

> levels. The degree of progress in this area has been constrained by the overall funding levels available coupled with the Commission's judgement that institutions should receive a minimum 6% increase in total assistance for 1977-78.
>
> In allocating operating assistance in subsequent years, however, the Commission will be attempting to establish a more direct relationship of institutional characteristics to the basic operating grant and will press forward toward regional equity in funding levels.

This statement leaves considerable latitude for interpretation. The concept of supplementary or special-purpose grants presents no difficulties; nor does the statement that some percentage of the total was distributed according to weighted enrolments. But the 70 per cent of the available funds distributed in the form of "basic operating grants" left great uncertainty about the Commission's funding procedures. These grants, it will have been observed, were based on some unspecified combination of "historical patterns of funding", weighted enrolments, and "institutional characteristics". My own discussions with Commission staff in June 1977 left me with the impression that the "basic operating grants" were distributed mainly on a historical basis, which would leave some 30 per cent of the available funds, minus the percentage allocated as "supplementary [discretionary] grants", to be distributed by formula on the basis of weighted enrolments.

Current procedures, first applied for the 1979/80 academic year, make it clearer how the grants are determined. The Premiers make available a certain sum of money for "sustenance", and may also allocate relatively small sums for program development or seed money, and for "equalization". The latter which is expressly set aside for improving the relative position of underfunded institutions, is in practice set at a level determined by the Province of Nova Scotia ($1.1 million in 1980/81). Nova Scotia's special role in this matter is explained by the fact that all the recipient institutions are from that province, and the money is supplied by the Nova Scotia treasury.

The money available for "sustenance" is divided into two parcels, 75 per cent according to historical ratios (for which purpose the equalization money of previous years is built into the base), and 25 per cent according to weighted enrolments, allocated by formula. Thus the speed at which funding patterns are adjusted to make up for initial inequities (as identified by the formula) depends entirely upon the magnitude of the sum earmarked equalization purposes.

Partly because equalization proceeds slowly, and partly because changing enrolment patterns do not have a cumulative impact on the "base" by which the three-quarters of the sustenance grant is allocated, Maritime universities will continue to be funded mainly according to historical ratios for the foreseeable future.

2.7.2.8 Newfoundland

Newfoundland, with its single university, uses the discretionary method for determining the general operating grant. Since the province does not face the problem of distributing an aggregate grant among a number of institutions, it could scarcely do otherwise.

2.8 A CRITIQUE OF CURRENT FUNDING ARRANGEMENTS

We cannot expect of any financing technique for Canadian universities that it should guide them as if by an invisible hand to the resolution of the problems which they will face over the next decade and more. Those problems, mainly associated with stable or declining enrolments but also reflecting the constraints and disappointments of a faltering economy, are severe. They will require tough decisions which the universities may prove incapable of taking regardless of external pressures.

It is essential, as this report has emphasized throughout, that the universities should continue to develop and to experiment even in a period of retrenchment and contraction. They must have some incentive to do so, so that they recognize innovation as a necessity rather than treating it as an expendable luxury. This will be very hard to do during a time when painful decisions on staffing and academic programming must be made.

Canadian universities may well fail to rise to the challenge of shrinking and developing at the same time. We can be sure, however, that they will not do so otherwise than in the context of financial constraints which are such that appropriate decisions will give them access to more generous resources than if they simply act out the sclerosis scenario. The danger at present is that hard decisions would not even bring financial relief to a university that took them. This is an important element in the concatenation of forces that are removing decision-making powers from the universities and, in so doing, making lively pedagogy and creative research more difficult to sustain.

Our survey of the arrangements which Canadian society makes for the financial support of its universities has revealed two major flaws. One is that there is hardly any carrot for innovation; the other is that there is only a very flimsy stick for inducing structural change where it is necessary, and for inventing solutions to staffing problems and program redundancy or overcapacity.

The only element in current funding arrangements which provides any significant reward or incentive for innovation is in the area of research support. Only in the awarding of grants, fellowships, and contracts is there a direct relationship between performance and reward, with reward appropriately taking the form mainly of better facilities and fuller opportunities to do one's work. In addition, faculty achievement in research, as monitored and assessed by peers from other institutions, is likely to lead to earlier promotion; it certainly increases the researcher's prestige within the profession.

It is also notable that the programs of the federal granting councils, as set out in their five year plans, do address the need for providing research opportunities for gifted doctoral graduates who stand little chance of obtaining a regular academic appointment; NSERC also recognizes and responds to the need to re-equip laboratories and update instrumentation, and generally to support Canadian research through a period of years in which, in the absence of special measures, Canada would face the loss of an academic generation.

Gratifying as this is, it is also notable that no comparable incentives exist on the undergraduate side, or generally for excellence in teaching. It has been complained of in the past, that publication which is the fruit of assiduous frontier research is considered an "objective" criterion for promotion and that teaching performance is apparently not considered as important, or else is presumed not to be subject to assessment according to criteria which could be defended against charges of personal bias or restriction of academic freedom. Although no changes in financing techniques for the universities could provide the criteria or the techniques for assessing performance in teaching, or ensure that excellence in teaching is appropriately rewarded, nor do present funding arrangements much encourage universities to insist upon high instructional standards from their faculty.

How might they do so? If research performance is to be assessed by one's peers, capacity for teaching (knowledge of the subject) is to be assessed by inferring from research performance and by the judgment of colleagues; but teaching performance has to be judged by students. This is not a plea for computerized course-evaluations and suchlike; it is simply recognition of the fact that a university's reputation as a teaching institution must be made to have some bearing on the financial resources made available to it. In short, there must be rewards for attracting students and penalties for driving them away; and this implies a financing technique which is fairly sensitive to enrolment, at least over the longer term. Only under these conditions can an institutions have any financial incentive to take its teaching function seriously, to redesign academic programs and to revise curricula to meet changing needs and to reflect changes in knowledge, and to reward its faculty for excellence in teaching.

There will certainly be those who reject this critique of existing funding arrangements on the grounds that it ignores the plight of those regional universities which have the bad luck to be located in areas of population decline (a regional university is one which draws the vast majority of its students from the immediately surrounding area; the term implies no qualitative judgment of performance in either teaching or research). The criticism is to some extent justified, and I have two responses to it. One is that the inequity which arises when a particular university undergoes an enrolment decline through no fault of its own (indeed, when its performance in teaching is perhaps of the highest calibre), must be weighed against the inequity involved in allocating such an institution more generous funds on a per-student basis than others can obtain; for such is a necessary implication of ignoring changes in enrolments or giving them little importance in the calculation of public subsidies. A second response is that if, for a provincial government, the importance of decentralizing the delivery of instructional services at the university level is sufficiently great to warrant a special subsidy, well and good: let it provide the necessary subsidy through a discretionary grant. But such a subsidy should not be paid for through a tax, as it were, upon other universities within the province.

The need to consider significant changes in methods of supporting the universities should not be viewed as resting solely upon the force, such as the reader may judge it to be, of the foregoing comments on current practices. On the contrary, it is evident that in almost every province serious changes are either under active consideration or are made likely by governmental unease about the evolution of the universities within the province and public dissatisfaction with the cost of supporting them. This fact in itself makes it urgent for those concerned with Canadian higher education to consider what policy alternatives are available for the public support of the universities, and to express their opinions.

chapter three

POLICY ALTERNATIVES FOR PROVINCIAL GOVERNMENTS

A "first principles" discussion of university finance raises some very difficult questions of both a technical and a moral character.

--What proportion of university operating costs should be borne by the students?

--If there is a public subsidy for university operations, what proportion of the subsidy should be channelled through the students (i.e., as student grants and/or loans) and what proportion should be given directly to the institutions themselves?

--Ought grants to institutions to be general-purpose grants, or should governments offer subsidies conditionally, directing that they be used for specific purposes such as instruction, research, and designated forms of public service? If controls are imposed, ought they to extend to the point where some programs of instruction are covered but not others, some types of research are supported but not others, and so forth? Or ought the universities, not governments, to decide what the priorities are?

--Regardless of the extent of government controls over the *programs or purposes* to be funded, ought governments to control *objects of expenditure*, e.g., faculty salaries, library services, laboratory equipment, central administration, and so on?

All these questions are raised in this report, but not in an *a priori* style. We have surveyed existing practices in the funding of Canadian universities, and our survey has revealed that all the questions of principle which have just been alluded to have been implicitly addressed in the design of government policy. Objectives have not necessarily been selected in full awareness of the alternatives, and the rationale for many policies may rest largely unexamined. But policies have been formed to deal with concrete problems, and no doubt each policy initiative has fitted, in the main, the immediate situation.

As has been shown in Chapters I and II, however, the situation of Canadian universities has been changing. Policies which may have been appropriate in one context and at one time may no longer be suitable. Public choices may have responded to the problems of the day, but they have contributed to the generation of new problems to which it is the task of the Canadian university community and of Canadian governments -- in the first instance, the provincial ones -- to respond.

The selection of means will be aided by awareness of the broad alternatives: the proportion of university funds which should be drawn from public sources, the financial support of institutions or of students, and the range of controls to be imposed on the universities through granting procedures and formulae. These are the questions which lie behind the "sources of university income" approach which is taken in this report. It seems of little use, however, to discuss such questions in the abstract.

In keeping with our preference for the concrete, in this chapter we examine provincial policies, and alternative choices in relation to them, under three main headings: grants policies, fees policies, and research policies. Of these, grants policies clearly are central, but it would be unwise to discuss them in isolation from the other two. To some extent, operating grants have the purpose of supplying what the universities require and cannot obtain from other sources. Indeed, it may well help promote the vigour, intellectual liveliness, and overall standards of performance of Canadian universities, if a financing technique is devised in which the general-purpose provincial grant is viewed as a supplement to other sources of income, even when -- as at present -- the supplement provides considerably more than half the total. At a minimum, it is salutary to view each source of income in relation to the others, with attention being focussed on the overall financial position of the universities.

3.1 WHAT SHOULD THE UNIVERSITIES BE ASKING FOR?

Governments and the universities in Canada today are at a stand-off on financial matters. Governments insist that there is only so much money in the public till, and that the universities will have to make do with what is available. In most provinces this attitude has resulted in annual budget cuts (after discounting for inflation) over the past few years.

The universities, on the other hand, point out that they have irreducible financial commitments. A large proportion of these commitments are to tenured staff, many of whom were hired during the period of government-encouraged expansion and will not reach retirement age for 20 years or more. The universities can easily demonstrate that they have already trimmed every budget category where they have any room for manoeuvre, with the consequence that standards have declined. Their capacity for innovation has been impaired; if they cannot hire new staff on a continuous though modest basis, they will be entirely paralyzed.

If we try to follow through the logic of the governments' position on the one hand, and the universities' position on the other, we find that neither is tenable. Governments seem to be saying that their own fiscal crisis must determine the level of support for the universities, that the universities can probably manage all right if they try hard enough, but if standards decline, so be it. It is a position which shows disregard for Canada's needs in higher education and research, and works special hardship for academically talented young people whose life-chances depend on their having access to university education of the highest quality. On the other hand, when the universities say they have irreducible financial commitments, that standards have declined, and that they cannot simply continue "on hold" for another 15 or 20 years, the implication can only be that their staff complements must be expanded at a time when, in most regions, enrolments can be expected to drop substantially. It is a position to which a public pressed by slow economic growth and inflation can scarcely be expected to be sympathetic.

Clearly, this impasse needs resolution. Governments can insist upon having their way on the financial question, but in doing so they may severely damage Canadian higher education. The universities are too weak, politically speaking, to force a solution on their own terms.

It is, accordingly, the position taken in this report that the universities must open a new phase in their dialogue with government by explicitly recognizing some hard realities. Chief among these is that reductions must occur in the number of tenured staff in some institutions and in some disciplines in order to allow for selective growth and development where needed. The necessary reductions are greater than will occur by attrition. They may occur partly through the closure of certain programs, departments, faculties, or universities; one cannot generalize about this because demographic patterns and the structure of higher education in the various provinces are too diverse. Be that as it may, the universities must have the courage to recognize that more public money is not the only element in a solution to the problems of contemporary Canadian higher education. If they take this stance, the universities will be in a stronger position morally and practically to discuss their financial needs with government and to lay claim to financial resources which, in the public interest, must be large. A high proportion of these resources will have to come, directly or indirectly, from the state.

The importance of the universities in cultural and economic terms, and society's obligation to provide the conditions under which every individual can develop his capacities to the fullest, justify the universities in asking for:

(1) Financial resources adequate at least to maintain and if possible to raise university teaching standards, and to expand the research capability of the universities collectively, though not necessarily of each university individually.

(2) A commitment from government to maintain or extend present levels of access to universities, and a commitment to funding arrangements which will permit expansion of the teaching capacities of the universities in academic programs and/or subjects where student demand and the needs of the society (including manpower needs, but not only these) justify such expansion.

(3) A financing technique and a relationship to government which:

- --accommodates the need for selective expansion and development in order to enhance the universities' position as centres of innovation,
- --facilitates adjustments to declining enrolments in certain programs, faculties, universities, and regions, and
- --leaves with each university individually the

primary responsibility for making the key decisions regarding the maintenance, expansion, or pruning back of existing academic programs, and regarding the introduction of new academic programs.

(4) Sufficient predictability in university incomes, and protection against inflation (i.e., predictability of real and not merely nominal income), to permit universities to plan staffing and academic programming on a multi-year basis.

(5) Determination of public subsidies on a basis which does not offset the financial advantages of the universities:

--setting fees schedules they judge appropriate,

--obtaining private gifts and endowments,

--drawing an income from the sale of services, and/or

--paring down expenditures in areas where savings can be realized.

3.2 FORMULATING POLICY ALTERNATIVES: MODELS VS. TENDENCIES

"Be realistic," shouted one of the Sorbonne graffiti of May '68, "do the impossible!" Liberating though the atmosphere of these days was, this slogan is unlikely to have been the furtive work of a senior French bureaucrat, even if a university administrator. People in such positions are accustomed to thinking out policy alternatives in cognizance of the constraints imposed by two disagreeable facts: that resources (financial, human) are limited, and that the most attractive routes to desired goals may be ruled out, given one's starting-point. The aims may be clear -- they should be clear -- but even so the steps towards them are likely to be exploratory. In the context of such a policy-making process, it is likely to be of little use to design the ideal university system, disregarding current circumstances.

That is why each of the alternatives for funding policy discussed in this report will identify a possible tendency or direction in which departures from existing practices may be made. Each option has advantages and disadvantages, attractions and dangers, the latter often being of a magnitude which cannot be assessed in advance or predicted by any model or simulation exercise. For example, it is impossible reliably to estimate how the doubling or quadrupling of tuition fees would affect access to university, assuming that student aid programs were also improved and extended. Although modelling techniques do permit the prediction of outcomes if certain variables are changed in specified ways, the data which could justify the necessary assumptions are not available.

In this situation, policy recommendations should be tentative. Government initiatives should involve only incremental changes which aim to achieve certain objectives and are continued only so long as adverse side-effects do not appear or do not assume such proportions as to cancel out their attractions. All the succeeding analysis, then, is carried out in terms of advantages and disadvantages of incremental changes in policy. The result should be to suggest experiments rather than ultimate solutions to difficult policy dilemmas. Even this, though, is no easy task: one wants to know which policy experiments are worth risking.

The alternatives are few. Logically, governments have the option of doing nothing to support higher education and research (this would imply avoiding all relations with the universities, including commercial relations, as in contract research or the purchase of executive training for public servants), or of doing something. If they choose the latter, they may purchase certain services for a fee; they may subsidize institutions (minimally, by offering tax breaks to private benefactors, or more generally, through capital and operating grants and research subsidies); they may subsidize students and perhaps also industrial purchasers of research; or they may do some combination of these things.

In fact, as everyone knows, both the federal and the provincial governments in Canada do subsidize higher education and research both directly (through institutions) and indirectly (mainly through students). Our survey of the sources of university income has described and analyzed the impact of all the important forms of direct subsidy, and has alluded to indirect subsidies (student assistance, in the section on fees income). Accordingly, our enquiry into policy alternatives for the support of university education and research will be a comprehensive one -- that is, none of the alternatives will be excluded -- if we consider possible changes in each area of existing policy.

Our emphasis, in this chapter and the next, is on evaluating the funding options which governments appear to be considering or might, realistically speaking, be induced to consider. Universities must recognize that every option will have its disadvantages, but before dismissing each possible choice in turn on the ground that it has its flaws, it would be well to survey the field. There may be some policy tendencies which the universities will come to regard in the wry manner of Maurice Chevalier, who remarked of old age: "It isn't so bad, when you consider the alternative."

3.3 GRANTS POLICIES

One reason for starting with grants policies is that some discussion of the subject is possible without presuming a specific level of public funding of universities, and without having resolved major questions about student aid, forms of research support, or the respective roles of provincial and federal governments in higher education. Changes in these areas will affect the magnitude of provincial subsidies to institutions through operating grants, but if there is any major reorientation of policy for the support of universities the new policies will take some years to design and introduce, and in the meantime grants policies may be scrutinized and modified without either presuming or pre-empting other policy changes affecting the universities.

3.3.1 BLOCK GRANTS DISTRIBUTED BY ENROLMENT-BASED FORMULA

In most provinces during the 1970's the trend has been away from funding universities on the basis of current enrolments, and towards augmenting the historical and discretionary elements in determining the allocation of general purpose grants. In spite of the difficulties which have produced this trend, the arguments which induced five provinces to adopt a technique of financing universities by enrolment-based formula in the late 'sixties are still valid. It is not evident that the problems which were experienced with formula financing are inherent in the technique itself; they may have been due to certain features of the formulas actually used. Accordingly, the first policy option which it seems reasonable to propose to provincial governments for the financial support of universities is to:

Option 1: Introduce or reintroduce the practice of allocating general provincial operating grants to universities according to a formula based on current enrolments, weighted by program and level.

This option is unlikely to recommend itself without modification either to the universities or to the provincial governments because -- if nothing else -- of the financial instability or unpredictability which funding by current enrolments entails. Still, it is worth reminding ourselves of the arguments in its favour, either to be clear about what is being rejected and why, or to decide, while accepting the principle of formula financing, how far one can depart from the application of the principle without sacrificing its advantages. Although it would be unrealistic to imagine the introduction of formula financing unalloyed by historical and discretionary elements, we should weigh the merits of the idea in its pure form and decide which of its features must be retained if its advantages are to be realized.

Formula financing is preferable to discretionary methods of funding universities because:

--Formula financing avoids the appearance of arbitrariness or favouritism in allocating a given sum of money among several institutions.

--Formula financing allows the universities to decide how best to use the monies made available to them. It combines the efficiency of decentralized administration with the principle of university autonomy in academic programming, unless the latter is taken away by external administrative controls. Discretionary funding, even where the money is allocated to the universities as a block sum, leaves the institutions in some uncertainty about the ultimate consequences of how they allocate funds internally. If the university gives high priority to a certain item in its budget (say, the re-equipment of laboratories) when an external decision-maker is doubtful about the need for doing so, the university may feel constrained to accept external priorities in order to protect next year's budget allocation.

--Formula financing enables a university to calculate the net costs of running individual faculties and departments, and to some extent the net cost of individual academic programs, since it knows how much income each student brings to the university in the form of a provincial subsidy. In this way a university is encouraged to launch new programs for which there is likely to be adequate student demand; and conversely, it provides a strong financial incentive to cut down on the costs of programs which no longer attract a sufficient number of students, or to eliminate them altogether. In this way formula financing supports both innovation and structural adjustments to changing patterns of student demand.

--Formula financing offers encouragement to private donors, since they are assured that their gifts or bequests will not result in a corresponding cut in government grants.

--The demonstrable freedom from political control associated with formula financing buttresses the university's position as social critic, and is a basic condition for the achievement of excellence in all scientific and scholarly work.

The argument that funding by enrolment-based formula encourages innovation in academic programming and provides incentives for structural adjustments applies not only to a comparison with discretionary funding but also, and with greater force, to a comparison with funding by historical ratios. As earlier comments have made clear, the prolonged use of the historical method in determining grant allocations is rejected in this report because it does nothing to promote flexibility within university systems or -- to take the equity argument -- to compensate universities for changing patterns of growth and development.

It follows that, in comparison with the only two available alternative methods for distributing provincial operating grants, formula financing has clear superiority. This is not to deny that it entails disadvantages which may be relatively more pronounced in certain situations than in others. Among the disadvantages we may note that:

(i) When provincial grants are based wholly on current enrolments, universities experiencing unpredicted -- and perhaps unpredictable -- changes in enrolment suffer extreme instability in their financial situation. At a minimum, they need some period of time to adjust. This suggests the desirability of introducing cushioning devices into the formula in order to soften the impact of a short-term dip or a long-term decline in enrolments.

(2) The formula may contain unanticipated and undesired "steering effects", encouraging unwarranted expansion of certain programs and costly duplication of specialist programming. The customary response to this occurrence has been to impose administrative controls on the introduction of new programs (though not to control the size of existing ones). An alternative response, however, might be to modify the weights assigned to various academic programs.

(3) It may be very difficult to apply a formula because the number of institutions is too small. The extreme case is Newfoundland, with only one university; but only Ontario, Quebec and the Maritime region have a sufficiently large number of institutions to give any credibility to formula financing, at least as long as formula weights are assigned according to the apparent cost experiences of the university or universities. This raises questions about the desirability of assigning formula weights on the basis of the cost-accounting technique of estimating the relative costs of various academic programs.

(4) Formula financing may be regarded as inequitable because each institution is in a unique situation, and funding according to a rule or formula does not make allowance for the differences which inevitably occur. Some of these differences arise from variations in scale; others, from location, age of buildings, or other factors. There are alternative responses to this sort of argument: either to supplement formula grants with non-formula or discretionary grants (as they always, in practice, are), or to move towards a more complex type of formula based on units other than or additional to weighted enrolments.

Each of these criticisms of formula financing suggests one or more adaptations which might be adopted by provincial governments without wholly abandoning the principle itself. They are considered in the subsections below.

3.3.1

Before examining what adaptations might be made, however, it would be well to refer briefly to two further criticisms of formula financing.

--Since formulas are based on quantitative data (enrolments, and perhaps items like square feet or floor space to determine maintenance costs), qualitative considerations tend to be ignored. A poor student brings in a subsidy, just as a brilliant student does; thus universities have a financial incentive to be lax in their admissions policies.

--Formula financing almost inevitably assumes a fixed and invariant relationship between graduate work and research; and the weightings for graduate enrolments generally reflect this. This may be unfair to universities with few graduate students.

These criticisms cannot be met by rewriting a formula, or by complementing it through the introduction of discretionary and historical elements into the financing technique. The issues raised by these criticisms will be commented upon in subsequent sections of this report, mainly Sections 3.5, 3.6, and 4.3.

3.3.1.1 Cushioning the Impact of Falling Enrolments

Problems of financial instability arising from fluctuating or declining enrolments (especially when the decline is unanticipated) may be counteracted by modifying a formula based on current enrolments, in any one of various ways:

Option 2: Introduce averaging provisions into the formula so that grants are allocated among institutions according to weighted enrolments over a period of years (say, three or five) preceding the financial year in question.

This option gives universities a period of time in which to adjust to falling enrolments, whether across the board or in specific programs. They will, however, have to face in the longer run the consequences of a deteriorating enrolment position relative to other universities in the province.

It must be emphasized that overall enrolment levels do not automatically affect the aggregate provincial grant when the formula is used for distributional purposes only. It is the relative position of the various universities, not aggregate enrolments across the province, which matters as far as the application of the formula is concerned. Naturally, an overall decline in enrolments across a system is likely to have an impact on political decisions about the level of government spending on universities, but that has nothing to do with formula financing unless the formula used is of the dual-purpose type (see Section 2.7.1.2.1).

The historical experience of several provinces indicates that the introduction of averaging provisions was a wise innovation. It does not eliminate or even reduce the need for eventual structural changes in the system when, across a province, enrolments decline or when patterns of student demand change within a generally stable enrolment pattern. Such structural changes will unquestionably be painful for the institutions which are most adversely affected, but the alternative is basically what I have described as "the sclerosis scenario" (Section 1.4.6). In my opinion, two other possible cushioning devices do incur the danger of sclerosis. Although for this reason I do not support their introduction, they are nonetheless options which may commend themselves to readers:

Option 3: Amend the formula by assigning each institution a floor figure for enrolment units.

Option 4: Amend the formula by assigning each institution a ceiling figure for enrolment units.

Ontario has already selected Option 3, establishing a "floor figure" for enrolment units; Option 4, establishing a "ceiling figure" has yet to be tried but might be attractive to those institutions most affected by a lengthy period of declining enrolments. The two options are phrased in such a way as to make one suppose they would do opposite things, but in fact both are techniques for achieving the same purpose: to underwrite those institutions which are losing students. Both devices do more than lengthen the adjustment period when enrolments are on the downswing.

The "floor figure" option says, in effect, to each institution: "No matter how many students you really have, we'll pretend there are at least 'x'." Ontario did this by making the years 1974/75 to 1976/77 a "funding base", the significance of which is that, according to an official statement (Ontario, OCUA, 1978a: 31): "an institution which had no enrolment whatsoever at the undergraduate level beginning in 1977/78 would receive funding on the basis of 50% of its average enrolment in [the base period]." We noted in Section 2.7.2.5.4 that when Ontario introduced the funding base, first for undergraduate studies and later also for graduate studies, the historical element came to outweigh the three-year rolling average of enrolments, in determining formula grants, by a ratio of about 2:1. In my opinion, this is too close to funding by historical ratios to realize one of the principal benefits of formula financing: the incentive each institution has to adjust to changing patterns of student demand.

Suppose now that the province put a ceiling figure on enrolment for each institution. This would be tantamount to saying to each: "No matter what your enrolments are, we'll pretend there are no more than 'y'." If 'y' were a moving figure, a form of enrolment target assigned each year by a universities' commission such that it shrank along with the expected shrinkage in the system, the consequence would be to spread the effects of declining enrolments more or less evenly among the universities. Universities which could, because of student demand, maintain their student body at earlier levels, would nonetheless be encouraged to cut back their admissions proportionately to what was occurring in the system as a whole. Presumably they could buck this pressure and admit as many students as they wished, but they would be allowed to count, for grants purposes, only the ceiling figure.

The idea of putting a ceiling on enrolment-unit entitlements has not, to my knowledge, been proposed by anyone. I do not propose it; indeed, I think it would incur, to an exaggerated degree, the disadvantages of funding by historical ratios. I include reference to the idea only because it rounds out the logical possibilities, and might become attractive in some quarters if enrolments within a province were to drop by 20 or 30 per cent over a period of years. It would respond to the thought, "Why should the full brunt of declining enrolments be loaded onto university 'z'? It should be shared more or less equally by universities 'a', 'b' and 'c' as well."

3.3.1.2 Modifying Enrolment Weights

The imposition of external administrative controls on academic programming, especially the introduction of new programs, is *prima facie* evidence that formula weights are too generous for the class of programs which universities appear bent on introducing. There are other possible explanations: that universities are more concerned about their prestige than about their finances, and therefore expand graduate programming unwisely; that generalist programs are losing students, and universities want to gamble on being able to compensate by introducing specialist programs of a vocational nature; or that decision-making within the universities defies explanation anyway and it is gratuitous to blame events randomly on one variable, namely formula weights. Indeed, Quebec's experience seems to suggest that the *prima facie* case does not stand up. Quebec, it will be recalled, counts enrolments but does not weight them differentially by discipline or level. There has not been any reticence among universities in that province to design new programs, and administrative controls on their introduction have been required, just as they have been in other provinces.

It is hard to know what to make of this. Evidence from the Quebec case effectively destroys any thought that tendencies towards the proliferation of advanced-level and specialist programming can be explained by the program weights written into formulas such as Ontario's. On the other hand Quebec's is a system which is still in expansion and is expected -- at least in the Francophone sector -- to continue to expand; and overall levels of funding have been relatively generous. Thus, I doubt that evidence from Quebec over the past decade tells us what we want to know about the steering effects of formulas in a period of declining enrolments and general penury in the universities.

> Option 5: In the formula, treat graduate enrolments less generously than has been customary hitherto in Canada.

Assigning formula weights is a delicate matter at the best of times, and in a period when budgets are tight and enrolments steady or in decline the practical difficulties in rewriting a formula are likely to be insurmountable. Nonetheless the fairness of formula financing depends upon the fairness of the weights assigned to various academic programs, and there appears to be some feeling that graduate programming has been treated too generously in formulas currently or recently in force. It is hard to judge this matter, since the program costing techniques used in Canada have involved too much guesswork to provide a reliable guide to relative costs (see Section 2.7.1.2.4). Still, it is hard to dismiss the grievance of a university with relatively few graduate programs if the university claims that the formula discriminates against it and that it cannot develop graduate programming in order to take advantage of the formula, because external administrative controls prevent it from doing so. The issue is a stand-off because the data which might establish such a university's case are not available.

My own view is that scaling down the weights assigned to graduate programming would be politically impossible to accomplish, and probably unfair, without complementary changes in the funding of research. If, however, a larger proportion of university incomes derive in the future from research funding, as subsequent recommendations will propose, then the reassignment of formula weights would be feasible, equitable and (in the sense of promoting needed structural changes) salutary.

How could appropriate weights be devised, especially in provinces where the number of universities is too small to offer much basis for cost comparison? It is here that I think that the Verry and Layard method of costing university programs, by regression analysis rather than by the cost-accounting method, holds out some promise (see Section 2.7.1.2.4). It could be done on a Canada-wide basis rather than in each province individually, university by university. My own understanding of the technique is too rudimentary to make a recommendation on this matter, but I do consider the technique to be worthy of thorough investigation. In making this proposal I am encouraged by the opinion of A.E. Safarian, who regards the Verry and Layard technique as "the only way" to estimate program costs (private conversation with the author). If, in fact, their method holds out some promise of determining what, empirically, the cost ratios of various programs actually are, the findings should establish a funding benchmark even for those provinces which have only a few universities -- or only one. Undoubtedly each province would wish to modify the application of the findings of such an enquiry into university costs by taking account of factors which affect local costs and thus make the situation of their universities "non-typical".

One reason I think it important to search for a benchmark for program costs is that at the moment the only way a province can satisfy itself that its universities are not grossly inefficient in their operations is by budget review and overseeing university administration. This is likely to introduce its own inefficiencies and may pose a threat to academic freedom. Certainly it cannot but affect university autonomy where autonomy is essential both for reasons of efficiency and for ensuring the freedom of the university from political control. A regression analysis technique for costing university programs might provide a way by which provincial administrations could satisfy themselves that the universities are not wasting the public subsidy which they are given. It might help to solve the accountability problem, without having the provinces overseeing the administration of the universities. Accordingly, I propose:

Resolution 1: That the universities of Canada sponsor an enquiry into the use of regression techniques of costing university programs, both as a rationale for assigning program weights within an enrolment-based formula, and as a partial contribution to solving the problem of university accountability for the use of public funds without having external supervision of and control over university administration.

3.3.1.3 Economies of Scale; Fixed and Variable costs

One of the assumptions of financing universities by enrolment-based formula is that there are no economies of scale or, in the alternative, that economies of scale ought to be disregarded. Disregard for economies of scale is defensible if one takes the attitude that an inefficient program should either be discontinued or be expanded to the point where it becomes efficient. The latter reasoning presumably was in the mind of policy-makers when they introduced formula financing in five provinces at the close of the 'sixties, but it scarcely applies during a period of stable or declining enrolments.

If, therefore, economies of scale do exist, as presumably they do, then formula financing is inequitable in those cases where programs have small or declining enrolments and it is considered undesirable as a matter of policy that such programs should be discontinued. This policy stance is widespread, being closely linked to the desire on the part of provincial authorities to support the territorial dispersal of instructional services as a means of raising or maintaining access to university programming. Many of Canada's universities were created or expanded to serve a scattered population by decentralized delivery of instructional services, and of these, several are now facing or have experienced falling enrolments.

Partly for the reasons which motivated the expansion of university systems during the sixties and beyond, and partly for reasons which have nothing at all to do with education or universities but a great deal to do with regional development or underwriting the economies of declining regions, provincial governments are unwilling to allow unviable universities to close down. The provinces may also wish to maintain a fairly wide range of academic programs where they are already established. Naturally the universities concerned support this position, and point to their heavy fixed expenditure commitments. They rightly point out that only a portion of their costs are variable (related to enrolment), and that their survival depends on recognition of the fixed nature of many of their costs. Thus we come to:

Option 6: Provide a provincial grant to support the basic or fixed costs of approved academic programs, i.e., those costs incurred in mounting or maintaining such programs for a single student; and provide an additional grant to cover marginal costs, beyond a stipulated minimum enrolment, the additional grant to be determined by enrolment-based formula.

This option would entail difficult and I daresay arbitrary decisions about the basic or fixed costs of running each academic program. It would also require the total reassignment of formula weights. It thus would be administratively cumbersome and obviously would remove the remaining elements of university control over academic programming. With such a financing technique, the universities within a province would be welded together into an integrated provincial system which was centrally directed. Each province would have, in effect, its provincial university with a powerful central administration, and a number of campuses providing such programs as they are mandated to do.

I doubt that this scenario would be attractive to many people in, or involved with, universities in Canada. My own attitude is also strongly negative. Why then mention it? Because it is merely a formalization of much of the argument which is now presented to provincial ministries of education or provincial universities' commissions. When universities argue that special circumstances or their own "institutional characteristics" make the application of a formula with standard weights unjust or inappropriate, the argument boils down to saying that they are offering a given range of programs and that they could not do so -- perhaps they could not exist at all -- unless the province takes account of their particular "cost experiences". This is an invitation to the funder to decide whether or not the university is offering the range of programs required by what it, the funder, considers to be in the public interest. It also invites the province to assess the efficiency of university operations -- given its circumstances -- in providing those programs.

Option 6 differs from this form of special pleading only in that it involves an attempt to establish basic program costs and supplementary enrolment-related costs on a comparative basis (i.e., to distinguish average and marginal costs), and to take cognizance of these differences in a formal or standard way when it allots each university its provincial subsidy. It leaves the province or some central agency in control of academic programming, but attempts to establish standards for determining the efficiency of university operations without line-by-line external budgetary control.

3.3.1.4 Financing only Academic Expenditures by Enrolment-based Formula

Another way of allowing for differing cost experiences of different institutions without inviting line-by-line external scrutiny of budgets is through:

Option 7: Fund "academic expenditures" -- instruction and non-sponsored research -- by an enrolment-based formula, and other expenditures by other formulas or on a discretionary basis.

This is the option proposed by Manitoba's Task Force on Post-Secondary Education chaired by Michael Oliver, which reported in 1973. It also appears to be what Quebec's

Commission d'étude sur les universités has recently recommended (Québec, CEU, 1979b). These reports distinguish between the operating costs of university departments, which include all regular teaching costs and a portion of direct research costs, and on the other hand the costs of items in university budgets such as central administration, library, heat and maintenance, and student services. The latter category are "indirect expenditures" which the 1979 CAUBO Report of the Pilot Study on the Cost of University Research estimated at 32 to 48 per cent of the operating budgets of the six universities being examined. It should be emphasized -- since I have been critical of costing studies which are based on "faculty activity analyses" -- that this part of the CAUBO study did not depend on such techniques, and that its estimate of the proportion of university expenditures classifiable as "direct" and "indirect" appears reliable and, indeed, very informative. On a weighted average 58 per cent of operating expenditures (excluding ancillary enterprises and student assistance) were estimated to be direct, or in the sense used in the Oliver report, "academic". It is this proportion which would be financed by enrolment-based formula.

The remaining 42 per cent (on average) could be financed either on a discretionary basis or by a number of formulas. For example, maintenance and heating costs could be allowed for on a per-square-foot basis, or by examining the university's actual costs. The latter method would take into account regional variations in electricity rates or in heat requirements, age of buildings, and so forth.

It has not, so far as I know, been estimated how much difference the separate funding of indirect expenditures would make in the allocation of funds among universities within any province. The evidence is therefore lacking on which to base a judgment of the desirability of implementing Option 7. Is the main variation in university costs by weighted enrolments to be found in the category of direct expenditures or indirect expenditures? If the latter, then possibly Option 7 would improve the financial position of a number of institutions, and introduce greater equity into the public funding of universities, without the external control of academic programming which Option 6 would require. On the other side, it must be noted that the university's ability to use funds as it sees fit would probably be compromised, as the funds are unlikely to be allocated to the university in a block grant. This infringement on the university's control of its budget is not an inescapable consequence of funding only academic or direct expenditures by enrolment-based formula. It is, however, sufficiently likely to result in the extension of external administrative control over university finances, that one would be well advised to pause before endorsing Option 7.

3.3.2 GRANTS BASED ON A DUAL-PURPOSE FORMULA

Up to this point our survey of policy options for provincial governments has assumed that a formula, if used at all, would be employed for distributional purposes only. Determination of the total sum to be spent in supporting the universities through operating grants would, it has been taken for granted, be accomplished by political decision quite independently of any formula which might be in use. By contrast, a dual-purpose formula would also determine, or at least have some impact on, total or aggregate levels of support (Section 2.7.1.2.1). We have already noted that until recently this has been an important feature of the financing technique used in Quebec (Section 2.7.2.6.1). However, in that province the rules for allocating operating grants provide for annual modifications of a historical base; grants are not calculated by enrolment-based formula. This simply illustrates the fact that there are many possible variants of funding by dual-purpose formula. With this caveat, we may note:

> Option 8: Employ a formula not only for distributing available funds among a number of institutions, but for determining the level of provincial spending on universities (operating grants).

A dual-purpose formula may be attractive to universities in a period when enrolments are climbing, but under conditions of stable, fluctuating, or declining enrolments, a dual-purpose formula would be most disadvantageous to them. It is presented here, however, as an option because provincial governments are understandably looking for ways to calculate what level of subsidy the universities need, and a dual-purpose formula may appear to be a way of doing so.

To understand why governments may be attracted to using a dual-based formula, it may be useful to refer back to Section 2.7.1.2.2, which shows how a simple enrolment-based dual-purpose formula may be progressively elaborated to inform decisions on funding levels. Some of the formulas noted in that section may be used to estimate necessary staff complements, required expenditures on faculty salaries, and other items. Of course, if a provincial government is bent on taking over the management of provincial university systems, it will simply do so; it is not as if devising a complex dual-purpose formula were the only way. But a formula of this kind could have some appeal as a means of assessing the financial requirements of the universities, with an initially simple version being honed into an instrument of control when its application requires answers to questions like, "What is an appropriate workload for faculty?"

Here it is necessary to note, I hope sympathetically, a dilemma which is faced by every grants commission or Ministry of Education in its dealings with the universities. For simplicity, let us take the case of the grants commissions. They typically are enjoined to respect the autonomy of the universities in academic matters and to leave them in charge of their own financial administration. On the other hand, the commissions are responsible for advising their respective provincial governments on the level of funding required, and for distributing among the universities whatever monies the province makes available.

To do these jobs well and fairly, grants commissions must obtain a great deal of information about the administration of the institutions for whose funding they are responsible. They must make difficult decisions about university financial requirements on the basis of criteria which necessarily involve judgments about what is necessary, worthwhile, or -- for the sake of excellence -- academically indispensible. The tension between respecting university autonomy and doing the job entrusted to them can only be handled by a compromise solution which tends, relatively speaking, towards one pole or the other. One possibility is that the commissions may seek to devise rules to impart rationality to the process in which they are engaged. Thus they may be led to devise a dual-purpose formula whose application leads them to scrutinize the internal allocation of funds within the universities and the efficiency of university operations (indices of faculty output in teaching and research, average class sizes, etc.).

I am anxious that my argument on this point should not be misunderstood. I do not wish to impute any dark motives to provincial governments or their grants commissions. Apparently they wish to respect university autonomy in all academic matters, and it seems they are committed to the decentralized management of the institutions they support. If for the performance of their granting functions they devise dual-purpose formulas, it will not be to accomplish by subterfuge the control of university systems. On the other hand the difficulties they experience in meeting their own responsibilities to the public may lead them, through something like a dual-purpose formula, a considerable distance in this direction. All these remarks are speculative, but I think they are not far-fetched because in the coming years the provincial governments are likely to be driven to search for ways to cut back further on their spending for higher education as, in most provinces, the number of students drops but the financial claims of the universities do not -- this at a time when the state, federal and provincial, is wrestling with a severe shortage of funds.

3.3.3 DISCRETIONARY GRANTS

It has been noted that all provinces allocate some grants, even for general operating purposes, on a discretionary basis. Under any imaginable financing technique, discretionary grants will continue to have their place. There is, however, a world of difference between supplementing formula grants with discretionary funds, and abandoning all openly acknowledged rules for allocating general operating grants among the universities within a province. This is what is meant by:

> Option 9: Employ a fully discretionary budget-review system for determining the grant that each university within the province requires, taking into account the financial needs of the institution and the funds it obtains from other sources.

A discretionary financing technique need not imply government control of university administration and of decisions on academic and other matters; it need not imply anything at all. The problem with discretionary funding is just that. It gives no assurance of financial stability, and offers no guarantee of institutional independence of government management or political control. Universities are unable to plan for their future development, lacking an assured financial base. Even the adjustments they may be forced to make to changing patterns of student demand cannot be rationally planned. All these are essential requirements of any financing technique which the universities can regard as acceptable.

3.4 FEES POLICIES AND STUDENT AID

Although tuition fees contribute a much smaller proportion of university incomes than operating grants, provincial government policies on fees and student aid raise issues which are every bit as important as those which arise regarding grants to institutions. These issues include:

--determination of the respective contributions of students and of the public to university operating costs;

--accessibility to university; participation rates and aggregate enrolments in university programs; and, in the longer run, educational attainment of the adult population;

--choice of a financing technique: whether to subsidize institutions or to subsidize students or in what proportions to do both; and

--structural changes in university systems: how the uniformity of fees or the existence of fee differentials among institutions affects structures and the immediacy of the adjustments universities must make to changing patterns of student demand.

Equity considerations, and the rationality or efficiency of policy choices, are both relevant to one's opinion on all of these issues.

What are the options? Basically there are two of them, though the first has several variants:

Option 10: Control the fees levied by universities, and: --

Option 10-a: Reduce, possibly to zero, the proportion of university incomes deriving from fees; or

Option 10-b: Peg fees at some assigned proportion of estimated program costs (i.e., fees vary substantially by program); or

Option 10-c: Raise fee levels, so that students bear a higher proportion of university operating costs than they do now; offer conventional or contingent repayment loans to counteract the presumably adverse impact on access and participation rates; and/or

Option 10-d: Raise fee levels, but counterbalance the increased fees with grants or fee-vouchers to students, either universally or on the basis of a means test (thus shifting a portion of the public subsidy from institutions to students).

Option 11: Let universities use their own discretion in setting fees, counteract any adverse impact on access and participation rates by appropriate student aid schemes, as in Options 10-c and 10-d.

The following five sections discuss these options, each in turn. All but the last presume provincial government control of fee levels.

3.4.1 FEE REDUCTIONS: IMPROVED ACCESS?

If fees are pegged at current levels, lowered, or increased at a rate below that of inflation, a real or "constant dollar" reduction occurs. The usual rationale for a policy of reducing fees is the supposition that there remain significant financial barriers to attending university, and that student loans and grants cannot overcome those barriers as effectively as fee reductions. An implication is that if fees are kept down as much as possible, access will be improved and participation rates will rise. This may be judged important for its contribution to achieving equality of opportunity (the equity argument) and to serving public purposes such as economic growth and cultural development (the public-interest argument). Some proponents of fee reductions may also hold the view that equity requires that education at all levels be free -- i.e., that the student should bear none of the cost of his education, or in the alternative, none of the costs beyond books and other supplies, and income foregone.

None of these arguments need long detain us. Let us at first suppose that equity is the dominant consideration. One may argue about the ratio of private-to-social benefits of a university education (the intrinsic value or satisfaction of learning, and the prospects of augmented future earnings, versus stimulus to the nation's economic development, enrichment of its culture, and so forth); however, on any reasonable supposition about private-to-social benefits ratios, the balance of the argument is likely to point towards an increase, not a diminution in fee levels. Thus an equity argument for reducing fees must be based on other grounds, of which the only plausible one is that society owes every individual the opportunity to develop his personality and his capacities to the fullest possible extent, and that such development should be as nearly as possible costless. It is hard to know what to say about this view, since it is a matter of taste or ideology, except to remark that the same principle ought in logic to be applied to ceramics classes, piano lessons, and annual holidays at the Stratford Festival and the Calgary Stampede. Laudable, perhaps, but impractical.

The other argument has an equity aspect (access to university) and a public-interest aspect (participation rates). Is it really true, however, that financial barriers to university attendance are important at current fee levels? To the extent that they are, are fee reductions a more efficient way of eliminating those barriers than the improvement of student aid packages?

All the evidence, and it is massive, points the other way. Although the class composition of university students by no means matches the class composition of the 18 to 24 age group as a whole, non-financial factors such as parental encouragement, school grades, and the student's self-confidence in his own future employment prospects have been demonstrated to be more significant determinants of educational attainment than are financial factors. Attrition in the high schools is substantial, as data presented in Section 1.2.2.1 have shown, and make-up of the matriculating class closely approximates that of the university entrance population. This indicates that selection has taken place prior to the point at which accurate estimates of the costs of university attendance could figure seriously in young people's plans to continue their education through to university. Consequently the rationale for a policy which primarily affects high school graduands is weak if it exists at all.

This is not to say that "money does not matter". Presumably it does. For one thing, high school students frequently hold exaggerated ideas of university tuition charges, but more important than this is the financial burden of income foregone, particularly in low-income families with several children, where the older ones must frequently leave school in order to support themselves or contribute to family incomes. The presumed importance of these factors cannot be addressed by changes in tuition fee levels, but require a much more far-reaching set of policies including better counselling in the schools and financial assistance to low-income families with children in high school, as well as to the minority who make it to university.

3.4.2 FEES IN RELATION TO PROGRAM COSTS

Most, if not all, universities charge different fees for different programs, but the differentials are far smaller than the differentials in estimated program costs. For example, as Stefan Dupré has noted (1977: 51), Arts students in Ontario during the years 1970/71 to 1977/78 paid something like 25 to 33 per cent of program costs (depending on the year), whereas medical students paid seven to nine per cent. Generally speaking, Dupré notes, those programs which can be expected to have the highest long-term financial payoff are precisely the programs for which the student contributes the lowest percentage of the costs. At a minimum, they might be expected to pay an equal percentage, and there is a good argument for their paying more; indeed, Dupré remarks: "There is no question that tuition fee determination in Ontario has totally ignored the issue of equity among students that is posed by the principle of benefits received" (1977: 50).

It is not all that clear what the "principle of benefits received" is; in any case, the principle would be extraordinarily difficult to apply. On the other hand a rule-of-thumb according to which tuition fees might be set at some fixed percentage of program costs is both easy to understand and -- at least in a rough way -- applicable. Dupré did it assuming the appropriateness of the Ontario BIU weights, noting that these weights do not attempt to distinguish between instructional costs and other costs (research and public service). By contrast, the recommendation of Ontario's Commission on Post-Secondary Education was to distinguish instructional from other university costs, and to ask students to pay one third to one half of the instructional costs. If they paid half, fees would have ranged, at the 1970/71 cost level, between $625 and $1500 (Ontario, COPSEO, 1971: 44).

A recommendation that students should pay some fixed percentage of estimated program costs (our Option 10-b) is probably a compromise solution to the problem of determining tuition fees. It appears to be based on the following arguments:

(a) University instruction (or certification) provides both individual and social benefits; the ratio between them will be presumed to be constant.

(b) Ideally students should bear that proportion of program costs which matches the ratio of private-to-social benefits (e.g., if the ratio is 2:1, and program costs are $3000 annually, fees should be $2000); but this might result in underinvestment (prospective students lack capital or access to capital markets, are afraid to borrow, or underestimate the future benefits they will reap); if so, the state should provide a subsidy.

(c) Equity among students demands that the subsidy be proportional to the "ideal" fee level, and it follows that fees should be too.

If these are indeed the arguments, my response is that their application requires strong assumptions and rather fine calculations. Be that as it may, we should note two practical implications of the proposal. One is that fees, even for the basic Arts programs, would almost certainly rise substantially above their present levels. The other is that fee schedules would have quite a wide range, the ratio of lowest to highest being 1:3 or 1:6. Thus if present undergraduate arts fees are $800 annually, fees for dentistry or graduate studies might well be set at $4800. In addition, the question would arise whether fees should be raised across the board as well. These observations lead us directly into discussion of the next two options, which have some similar consequences, and would require complementary changes in student aid programs.

3.4.3 SHIFTING COSTS TO STUDENTS

Our Option 10-c is to raise fee levels, so that students bear a higher proportion of university operating costs than they now do; it involves also increasing the availability of student assistance to counteract the presumably adverse impact on access and participation rates which a shifting of costs would entail. This option differs from the preceding one in that (a) it neither provides nor requires any rationale for the level at which fees are eventually set, and (b) fee differentials for different programs, although they may exist, would not necessarily be any greater than existing differentials are. Our Option 10-c is more likely to be formulated in terms of expediency ("whatever the rights and wrongs of the case, the public treasury can't stand the strain of supporting universities as generously as they have in the past"); it is less likely to rest on principles of equity or economic arguments about optimal rates of investment in human capital, etc. The latter forms of argument may be held to be consistent with the shifting of university operating costs to students, but for many people the incentive for doing so is pragmatic and has little to do with higher education as such. The determination to cut back the public subsidy for universities expresses a political attitude from which both the students and the institutions may receive the fall-out. Recognizing these facts is not necessarily an inappropriate starting point for reflecting on fee levels and related questions of student aid.

It is doubtful that many of those who wish students to bear a significantly heavier proportion of university operating costs have carefully sifted the evidence, such as it is, on the probable impact that such a policy would have on access and participation rates. Those who are concerned about these matters may, however, find encouragement in an economics literature which points out:

(a) that university students come disproportionately from the higher income groups, and that therefore the public funding of universities effectively transfers income from relatively poor to relatively rich;

(b) that loan schemes can be devised which would assist highly-motivated people, regardless of family income levels, to pay much higher fees than they do at present.

The loan schemes proposed are traceable to a plan put forward by the American economist Milton Friedman (1955) and subsequently dubbed the "EOB" (for Educational Opportunity Bank) scheme. Several Canadian versions have been put forward, a frequently cited example being the "CORSAP" or "Contingent Repayment Student Assistant Program" proposal of G.C.A. Cook and D.A.A. Stager (1969). This and other contingent repayment schemes provide for loans which are paid back as a surcharge on the income tax; students with low incomes in the years following graduation pay back only a part of the loan, or conceivably none at all. The financial risk involved in borrowing is thus eliminated.

This is a scheme which is far from being unattractive, but any optimism that an all-loan program would have little adverse effect on accessibility must be doubted. One's guide on these matters should not be abstract reasoning, but the abundant sociological evidence which reveals the unwillingness of young people, particularly from lower income levels, to assume heavy long-term debt. The contingent repayment idea is of course designed precisely to overcome such "loan aversion" by eliminating the risk involved in borrowing, but the truth is that we cannot predict how young people would react to a plan based on the contingent repayment principle. The mere fact that it is labelled a "loan", and the terms are complex, is likely to constitute a real if "merely" psychological barrier.

I think the universities of Canada would do well to lend their support to any public project to design and implement a contingent repayment loan scheme, but not on the assumption that it will replace existing student grants or that it would neutralize the effects (in terms of access and participation rates) of a very sharp increase in fee levels. If a contingent repayment loan scheme is put into operation and appears to work well in assisting lower-income groups to attend university -- and let us recall that tuition fees are normally less than 30% of the cost of doing so -- then it may appear that access and participation rates can be maintained even when fees are raised, perhaps substantially. That can and should happen only gradually, with a constant monitoring of the impact on university attendance. If the universities wish to formulate a position on this, let it be: contingency repayment scheme first, and the shifting of costs to students later -- and then, only to the extent shown to be consistent with maintaining or improving accessibility.

A compromise arrangement, of course, is to raise fees but to make means-tested grants so that, in effect, only those students with considerable financial resources pay the full increase in tuition charges. In that case students who cannot easily draw on personal or family resources would pay none of the increase or even obtain a net financial advantage. The multiform combinations of grants, loans with remission, contingent repayment loans, subsidized conventional loans, and normally unsubsidized but government guaranteed loans, are legion; and we cannot survey them here.

3.4.4 SUBSIDIZE INSTITUTIONS OR STUDENTS?

Whereas in the previous section we were looking at the proportion of university operating costs borne by, respectively, students and taxpayers, this section is concerned with alternative techniques for subsidizing university education. Assuming a public contribution of given magnitude, in what proportions should one subsidize (a) students, and (b) institutions? The question is posed by a hypothetical example corresponding to our Option 10-d: if fees were tripled and grants were given to students on a universal basis to fully offset the increased tuition charges, theoretically there would be no difference in the level of public spending; but the impact on the universities might be quite different from the impact of the present arrangements, where the emphasis is on general operating grants to institutions.

One way of transferring a higher education subsidy from institutions to students apparently owes its initial formulation, as does the contingent repayment loan scheme, to Milton Friedman. Friedman has suggested (1959, 1968) that if the state insists on subsidizing education, the "least bad" way to do it is to give students vouchers or coupons for educational services which they could "cash" at any recognized institution. The voucher would pay some portion of the fees, and the institution could redeem its cash value from the state. There would be no other form of state support for education.

The voucher scheme would submit the universities to the discipline of a free market in educational services, and would avoid a situation where, in Friedman's words (1968: 111), "The subsidization of institutions rather than of people has led to an indiscriminate subsidization of all activities appropriate for such institutions, rather than of the activities appropriate for the state to subsidize." In other words, schools and universities would be guided by market demand in the services they provide, and the demand for services would be affected in turn by the subsidy available for certain types of course or program, but not necessarily for all.

Any financing technique which subsidizes students rather than institutions would sharpen competition among colleges and universities, and would subject them to financial instability as enrolment patterns changed, particularly if this occurred within a context of generally falling enrolments. It would promote diversity within a network of self-governing educational institutions and give prospective students the widest possible range of options consistent with their financial means, which would be augmented by the state subsidy; but it would do so by forcing the closure of several of Canada's universities and would involve great wastage of existing educational and research resources. In addition, the state would have de facto control over curricula (by deciding what to subsidize and what not to) and might well end up regulating admissions by type of program through system-wide quotas. The technical sweetness of the voucher scheme and its variants should beguile no one into supporting the destruction of much of the post-secondary system which has been built up over the years.

On the other hand, the provincial governments are already, in concert with the federal government, apportioning a part of the public subsidy for higher education to students in the form of grants and subsidized loans. Within fairly narrow limits, the provinces control fee levels, or at least set maxima which the universities almost automatically charge. Accordingly a province may, as an alternative to raising general operating grants, permit the raising of fees while also amending the regulations for student assistance so that a portion of the raise will be supplied indirectly by the public treasury. Thus a higher proportion of the provincial subsidy for university education would take the form of grants or subsidized loans. Since only a minority of students are eligible for such assistance, there is obviously a net saving for the treasury (and maybe even for the taxpayer!) when part of the increase in university incomes derives from increases in fees rather than in operating grants. If this occurs, does it make any difference to the universities as institutions?

The answer to this question is not simple. In the first place it depends on how the general operating grant is calculated. Let us say that the procedure is to estimate each university's financial requirements, whether by formula or by the discretionary method, and then to subtract the fees income it receives, or would have received if it charged fees at a stipulated level. In this case it should make little difference to university incomes in the aggregate, or indeed individually, if fees go up marginally and grants go up correspondingly. This should be so even with means-tested grants, as all student grants in Canada are. The qualification to the general statement ("it should make little difference...") arises from the possibility that higher fees, even when counterbalanced by grants to students who need them, may cause some young people to veer away from embarking on a university program. In other words, the less highly motivated youth, especially those not qualifying for grants, might be discouraged from attending university. This might be good or bad, depending on one's values or ideology; it presumably would have a mildly depressing effect on participation rates.

There is one additional difference we should note, if a larger proportion of the public subsidy is directed to students rather than to institutions. At present, although some people have expressed anxiety about the possibility that provinces might start requiring their universities to charge out-of-province students a surcharge on their fees (or to pay the surcharge themselves through grants foregone), no such fee differentials exist at present for Canadian citizens and landed immigrants. Subsidies paid to institutions within a province, to the extent they are based on enrolment, are paid at the same rate for students from that or from any other province. By contrast, grants usually are not paid to students who go to other provinces to study unless the program in which they are enrolled is not available within the province of residence (in this respect the Maritime provinces have formed what might be called a "pool" arrangement). This limitation on the portability of grants -- note that it does not apply to the Canada Student Loans Plan -- would become increasingly serious to the extent that university education was financed through student grants rather than through grants to institutions. A generalized tendency in this direction would also shift costs interprovincially, away from those provinces which experience a net influx of students and towards provinces with a net efflux.

We have noted a number of effects of marginal changes in financing techniques for higher education, changes involving a redirection of public subsidies (towards students and away from institutions). These observations suggest that the universities would be wise to:

(1) Support any changes in methods for calculating grants to institutions which would minimize the

effects on university incomes, if part of the higher education subsidy were transferred from institutions to students.

(2) Support modifications to student assistance programs which ensure that government-mandated fee increases result in corresponding increases in grants, not loans, to students who are eligible for assistance. This recommendation is based on a desire to avoid diminishing access to university for low and middle-income groups.

(3) Insist that, if any significant redirection of the public subsidy is contemplated, the necessary changes in student assistance programs be made first.

(4) Support the modification of student assistance programs, if necessary through joint action by the federal government and the provinces, to ensure that any redirection of the public subsidy not result in any reduction in the interprovincial mobility of students.

3.4.5 SHOULD UNIVERSITIES SET THEIR OWN FEES?

The question of institutional autonomy in setting fees is easily confused with the two questions we have already discussed: first, whether it is desirable to shift a larger part of the financial burden of a university education to the students; second, in what proportions a public subsidy for higher education should be directed to, respectively, students and institutions. As the two previous sections have shown, however, policy changes of both sorts may be effected without giving the universities any greater latitude than in setting fees they now have. By contrast, a policy of decontrolling fees has precisely that meaning. Each university would be left to sort out for itself the conflicting claims of (a) fairness, and the fulfillment of its trust for public service, (b) its financial needs, given the standards of instruction and research it wishes and thinks possible to attain, and (c) the financial penalty, stemming from reduced enrolment, entailed in setting fees at too high a level relative to other institutions. A policy which returns the responsibility and authority to the universities to weigh these conflicting claims would necessarily be adopted in the knowledge that fees generally might rise, and that historically unusual differentials might arise in fee levels (a) among academic programs, and (b) among universities. Are these occurrences which an enlightened government might reasonably contemplate, and ought the universities to urge the state to incur these possible consequences of restoring institutional autonomy in the matter of fees?

My answer is, by all means, yes: let the universities set their fees at a level they consider justifiable and prudent. The provincial governments ought to avoid limiting the universities' access to funds from sources other than universities' commissions or provincial ministries of education.

The provincial governments will surely retain, through student aid policies, some influence on the level and structure of fees; but in the main their concern with the fees question should be limited to counteracting the adverse consequences of high fee levels, whether in particular programs, in individual universities, or across a provincial system.

Provincial governments will almost certainly continue to restrain fee levels by their student aid policies. In the preceding section we stressed that student assistance programs should be so designed that government-mandated fee increases should result in corresponding increases in grants, not loans, to students who are eligible for assistance. The province would have to avoid, however, permitting "backdoor financing". Universities could not be allowed to collect through the students a public subsidy which the government was unwilling to give directly to the institutions in the form of operating grants. In other words, if by raising fees the universities automatically triggered a rise in grants to students, they would have acquired what every taxpayer and every interest organization dreams of: the power to tax the state. I am not proposing that the state consent to this. Fee charges beyond a stipulated level ought not to be allowable student expenses in making grants applications. (By deciding what that level should be, the provincial government would retain an important influence on fee levels.) On the other hand, it does seem reasonable that fees at whatever level ought to be allowable expenses in calculating eligibility for loans. Although the state pays a subsidy on student loans, the subsidy, except in loan-remission schemes, is not so great that the state could not bear it. Indeed, it would be a cheap way of assisting the universities to obtain the financial resources they need.

A final comment: fee differentials among institutions, if large, could result in inequality of access to various universities. There might be a stratification of universities by average wealth of their clientele, with the universities which attracted the *jeunesse dorée* being, by virtue of their greater budgetary freedom, higher class institutions in two senses. It is likely that universities with higher-than-average fees would be alive to this, and would complement public student assistance programs with programs of their own. (This has been suggested by two advocates of institutional autonomy regarding the setting of fees: Dupré [1977: 56], and the Council of Ontario Universities [Ontario, COU, 1979: 3].) If the universities concerned did not establish their own bursaries fund, they could be required to set aside a portion of their "extra" fees income for this purpose.

3.5 RESEARCH POLICIES

A recurrent theme in the literature on financing universities is the desirability (or otherwise) of funding instruction and research independently of each other. Consider, for example, the recommendation of Ontario's Commission on Post-Secondary Education (Ontario, COPSEO, 1972: 141-2):

> The public subsidy for operating costs of post-secondary institutions should be allocated to each institution as a single global sum [but its calculation] should distinguish between [an enrolment-related] subsidy for educational or instructional functions (including research and scholarship vitally associated with instruction)...and payments for research and other activities, where applicable, on a long-term basis (no fewer than three but no more than five years) and following quality assessment within each field or discipline.

Similar proposals have been made in other documents. For example, the Graham Report in Nova Scotia (1974) and the Peitchinis Report commissioned by the Council of Ministers of Education (1971) both endorsed the principle that students should normally pay instructional costs and the state cover the full cost of university research. Also Quebec's white paper on research (1980), while not addressing in any general way the issue of university financing, proposed that the Ministry of Education should launch a special program for the development of university research (Québec, Ministère d'état au développement culturel, 1980: 151):

> The development of university research will be an integral part of the political and administrative responsibilities and structures of the department, and will thus become a clearly identified priority field. Financing will no longer come, as is the case today, from funds left over after the general distribution of money for higher education. University research will be treated as one of the most important basic programs.

The proposals cited, all recommending the financing of most or all research services separately from instructional services, appear to have different purposes or to stem from different motives. Our understanding of the role of the provinces in the funding of research, and the place which research funding has in the provincial support of universities, will be enhanced if we distinguish among these various motives or purposes, noting that they are not mutually exclusive:

--to adopt a user-pay principle for financing universities, on the assumption that the benefits of instruction are largely private (and therefore appropriately borne by students) whereas the benefits of research -- either research generally, or research within specified areas of national or provincial concern -- are largely public, and accordingly the funding should be public also;

--to facilitate the rational and comprehensive planning of provincial university systems through the coordination of research and teaching, each institution with its own areas of specialization;

--to promote good teaching in the universities (let staff who want to concentrate on teaching do so, and save undergraduates from professors who are interested only in their research); to promote research independently of graduate instruction, and avoid the inequity of allocating funds to institutions on a basis which assumes a fixed relationship between graduate studies and research; to ensure that the reseach carried out in universities supports the teaching function; and

--to develop within the province a general research capability and/or specialized research capacities in selected areas of particular concern to the province.

The arguments supporting the separate funding of teaching and research thus fall into four quite distinct categories, according to their respective objectives: achieving equity according to the principle of benefits received; enabling a province better to control the development of a university system; promoting excellence in teaching, especially of undergraduates; and developing a research capability. The interesting thing about these arguments -- and to the best of my knowledge, the list is comprehensive -- is that only the first requires radically distinguishing research activities from teaching activities; only the first (the equity argument) requires consistently distinct methods of funding the two functions.

The reader who has not skipped the first two chapters of this report to get to the conclusions, will already know that I think the attempt comprehensively to distinguish teaching activities from research activities does not make sense. Although there are indeed some hours of each professor's day which are unambiguously classifiable as being spent on the one or the other, many activities contribute to each function in proportions which it is entirely arbitrary to identify. Not only does this imply, as I argued in Section 2.4.1, that the separate costing of the two functions is logically as well as practically impossible; it implies as a corollary that it is not meaningful to declare that students should bear the full cost (or half the cost, or any other proportion) of their instruction.

The point I am making is implicitly recognized both in the Peitchinis Report and by COPSEO. Peitchinis (1971: 434) recommends that "Research which is directly related to the instructional process and the training of specialized manpower, should be financed through the institutions themselves', while other research (most of which Peitchinis recommends be carried out in research institutes rather than universities) should be financed directly on a full-cost basis by funding agencies. Similarly, the COPSEO recommendation, already quoted, proposes that an enrolment-based formula be used for allocating operating grants to universities for instructional purposes including research and scholarship vitally associated with instruction. It adds (Ontario, COPSEO, 1972: 142): "Where the line is drawn between these two kinds of research is a matter of judgment, approximation, and consultation with appropriate groups...people of goodwill are likely to disagree on where the separation should be made." And then, in a textbook demonstration of tautological reasoning, the authors opine: "We suggest that the determining factor should be whether the research effort and cost in question can be regarded as essential to teaching." What else could they say?

The same problem was faced, with no greater success, by Bonneau and Corry, who proposed different methods of funding "reflective inquiry" and "frontier research". Having distinguished between the two (in terms quoted in Section 2.4.1) while also emphasizing that each is essential to the other, they then proceed to treat reflective inquiry and frontier research as different activities rather than as conceptually distinct elements in the research enterprise. They propose (1972: 70):

> ...[distinctive] patterns of support for "research" in the humanities which recognize the centrality of reflective inquiry, and are thus more appropriate to their needs than those designed primarily for the physical, life, and social sciences....[Humanities] "research" is mainly a service to education through teaching. So its main cost should be covered by the annual operating grants to the universities from the provincial governments....Whether earmarked for this particular purpose or not, funds for reflective inquiry in the humanities should come to each university, large or small, for awards to be decided on within the university.

By contrast, according to Bonneau and Corry, in the natural and social sciences there should be relative concentration of research support in a few centres of excellence, supported by grants which would include an item for indirect costs and faculty release time (45% of project costs, payable to the universities for whatever purposes they saw fit).

This proposal, like those in the COPSEO, Graham, and Peitchinis reports, suffers from being formulated in overly-schematic and categorical terms. Much of the conceptual baggage can be thrown away. Except as a preliminary step to funding universities on the user-pay principle, there is no need to distinguish research which supports instruction from research which does not, or to treat research and teaching as distinct activities. To achieve any or all of the other purposes for which the separate funding of teaching and research has been suggested, one need only recognize that *research leading to publication* may be supported independently of other forms of public subsidy to the universities and what they do. We need not become entangled in dubious distinctions such as between pure and applied research, discovery-oriented and mission-oriented research, or reflective enquiry and frontier research. We need only proceed to ask (since we are surveying policy alternatives for provincial governments): ought the provincial governments to be making grants for research leading to publication, and on what scale? Other questions (about recipients, allocative mechanisms, coverage, etc.) follow, but none implies a choice between retaining traditional financing techniques -- with their emphasis on general-purpose operating grants to institutions -- or moving to a new financing technique such as would be required by a commitment to adopt distinct criteria and methods for the funding of teaching and research. Any such radical choice would result not only in a noticeably different distribution of public funds among institutions, but also in the redefinition of institutional roles. It thus would require unusually bold action from the provincial governments and would mobilize institutional opposition, guaranteeing death-by-politics to the new and grand design.

None of the foregoing implies that other policy choices facing provincial governments regarding the provision of sponsored research funds are trivial. On the contrary, there are distinct options, and what the provinces do in relation to them will intimately affect the universities as institutions as well as impinge upon the quality of teaching and research. The implication of the preceding paragraphs is simply that action along each of several distinct lines may be embarked upon simultaneously, and with varying degrees of financial commitment. The universities, in considering which of these options to urge on their respective provincial governments, should recognize that a government which spends a lot of money on the sponsorship of research is likely to spend correspondingly less on general purpose operating grants to institutions. Moreover, although the universities require no one to point this out to them, the federal government has *mutatis mutandi* the same options as the provinces; and for any activity one should ask whether it ought to be carried on by the provincial governments, by the federal government, or by both -- independently or in concert. The potential lines of action for the provinces, then, are to:

Option 12: Support research by contract and possibly also by grants, in areas of special provincial concern, e.g., education, social services and health care, and technological development.

Option 13: Create provincial granting councils with functions analogous to, and perhaps duplicating, those of the federal granting councils, particularly in the support of specific projects proposed by individual faculty members.

Option 14: Support, whether through quasi-independent granting councils or through government departments, the development of a specialized research capability in selected areas of scientific, technological, and scholarly activity, conceivably with intent to strengthen the position of provincial researchers in competing for federal funds.

Option 15: Ensure, through a program of grants to universities or to institutes affiliated with universities, that the funding of university research supports the implementation of a general plan for the development of a provincial university system, each university having selected areas of specialization.

Option 16: Work towards the development of a comprehensive research capability within the province by (a) defining the province's research needs and priorities, (b) choosing appropriate instruments for the implementation of a research strategy -- in government laboratories, in industry, in research institutes, and in universities, and (c) promoting university research, in those areas identified as being appropriate for the universities, through a combination of the techniques or mechanisms mentioned in Options 12 through 15.

Readers who survey this list might appropriately ask themselves two distinct questions about each option. First, is this what we want government to be doing? And second, if this is what we want, should the provinces be doing it, and what resources should they be putting into it? A relevant consideration is that, except for mission-oriented research (mainly funded by contract), provincial monies spent on these objects might well diminish the sum available for distribution as general operating grants. Alternatively, other provinces might follow Quebec's lead in claiming the transfer to the province of federal funds for research support. Would the universities wish to support such a claim?

Our survey of current research policies of the provincial governments (Sections 2.4.2.2 and 2.4.2.3.3) has shown that hitherto most provinces have limited themselves to Option 12 (contracts, etc.), the agencies concerned being mainly those with responsibilities other than post-secondary education. In addition, Alberta has an endowed foundation for the support of medical research, partially occupying the field of Option 13. Quebec has been involved for some years in the areas noted in Options 12 through 15, and its 1980 white paper on research, A Collective Project, has announced a wide-range policy corresponding to Option 16. It is in order to implement this option that Quebec has laid claim to federal cash grants or tax points corresponding to its fair share of research support in the universities and other provincial institutions like the hospitals.

My own preference, supported by arguments presented immediately below (Section 3.6) and in Chapter IV (Section 4.3), is for the development and implementation of provincial research funding policies which presume an expanded federal role in the support of university research. This does not imply having a single comprehensive design for the development or rationalization of research in Canadian universities. The prospects for arriving at and implementing a jointly formulated federal-provincial policy for Canadian university research are too slight to propose any single design, and indeed I would not wish to. Least of all would I recommend a policy which is basically federal but implemented with the administrative and financial support of the provinces.

In terms of the options I have identified, it seems entirely appropriate to me that the provinces should support university research through contracts and mission-oriented grants (Option 12), through the creation of provincial funding agencies (Option 13), and through a deliberate plan to develop the universities' research capabilities in selected areas (Option 14); and if their idea is to enable researchers in the province to tap federal funds more readily, or to cream off a larger share, so much the better. All such actions by provincial governments would be consistent with a principle which I enunciated in the context of discussing fees income (Section 3.4.5), a principle which I hope will commend itself to the universities and to the provincial governments: that the provinces ought to avoid limiting the universities' acess to funds from sources other than universities' commissions or provincial ministries of education.

Some of the actions which might be contemplated under Options 15 and 16 would collide with this principle. Specifically, if the desire to rationalize the structure of provincial university systems leads provinces to have research contracts and grants cleared by a central agency such as a provincial ministry of education, I would deplore this. Similarly, I would condemn any plan to limit the conduct of research even with public funds to those areas selected as having priority according to some agency's conception of national or provincial priorities, or according to its judgment of the scientifically most promising lines of enquiry. My opinion on this is not affected by knowing whether the agency would be federal or provincial.

These statements should not be taken as endorsement of any and every agreement made between individual researchers (or particular institutions) and external funding agencies. In particular, the federal granting councils must recognize when and in what ways their policies impinge adversely on matters properly of concern to the provincial governments, and must amend them accordingly. But this is to anticipate the discussion in Section 4.3.1. (This section will also bring up a number of specific questions about research support policies which are relevant in the provincial context as well, but which are better saved for later discussion.)

In the meantime, the reader has a right to know the reasons for the assertions I have made about the appropriate limits of provincial action in the funding of research. These reasons, however, pertain to more than research matters, and so they are saved for the next section, the final one in this chapter.

3.6 FINANCE, PROVINCIAL SYSTEMS, AND UNIVERSITY EXCELLENCE

The external control of universities is the enemy of excellence in teaching and research. University excellence requires the freedom to pursue truth according to one's lights, and to voice one's criticism of orthodox doctrine, theory, and belief. It requires experimentation and diversity in teaching methods and curriculum design, sparing use of directives in the selection of research objectives and priorities, the collegial governance of institutions down to the departmental level, and the elimination of all unnecessary bureaucratic ritual. These are the reasons for affirming the importance of administrative decentralization and the principle of university autonomy.

It is worrisome, then, that to an increasing degree provincial governments -- some more than others -- are apparently thinking in terms of the design and management of provincial university systems. Some of the provincial governments and universities' commissions have equipped themselves with the expertise and many of the tools for overseeing the financial administration and overall planning of the universities on a province-wide scale. In this there may be some tendency to emulate practices and adopt techniques already observable in some of the American states.

My argument, in brief, is that the creation of a centralized university system is unlikely to conduce to excellence, and indeed is likely to detract from it. To this argument the rejoinder may well be made, with perfect justice, that some of the leading American universities are components of statewide systems of higher education and that, for example, neither the multi-campus University of California nor the multi-campus State University of New York is an intellectual backwater.

Merely making such comparisons, however, is enough to remind us of some of the obvious ways in which the emerging provincial university systems in Canada differ from state systems south of the border.

--New York and California, to take our two examples, are the most populous states in the country; their sheer size and wealth makes possible the development of universities which draw upon far vaster resources than are available in any Canadian province. The state universities are flagship institutions at the head of a large flotilla of lesser state colleges and junior colleges.

--Alongside American state universities are the private institutions, many of them leading centres of learning and research; thus the concept of "system" is leavened by the existence of institutions which are outside it and which do much to establish the standards for all universities, state and private.

--All of the front-rank American universities, including the state universities, are heavily dependent on external research support. For example, in fiscal 1977 four of the campuses of the University of California ranked among the twenty universities receiving the largest amounts of federal money for research and other purposes, with federal obligations to each of these campuses ranging from $73 million down to $36 million. (By comparison, in fiscal 1979, the University of Toronto obtained federal research grants of $24 million, and received sponsored research income from all sources totalling $45 million.)

It is evident, then, that American state systems of higher education form part of a larger network of educational institutions, and that some at least of the state universities are truly also national or international universities. They serve a population ten times the size of Canada's and contribute heavily to the basic and applied research needs of the most technologically advanced country in the world. Furthermore, when research funds became more scarce in the early 'seventies, there occurred a marked tendency towards the concentration of graduate work and research, reinforcing the concept of a national system which includes both private and state universities.

It is the situation of American state universities which convinced me of the unwisdom of trying in Canada to form provincial or regional systems which include only a small number of universities, all nominally of equal status and treated with equal favour by the provincial authorities. Not that equitable treatment of institutions is unwise; rather, the problems arise when the provincial government or its agents and advisers show uneasiness about the access which "their" universities may have to external research funds, when they control fees, and when they participate directly in major decisions on academic programming.

A centrally directed provincial university system in Canada would run the risk of becoming self-contained and inward-looking in a way which state systems of higher education in the United States are not. There, the more renowned state universities are equipped to compete on a national and international scale, and to hold their own among world-rank universities. By contrast, if a province like Ontario or Quebec -- to say nothing of less populous provinces or regions -- were to promote the development of university systems other than in the context of a Canada-wide network of universities, itself forming part of an international one, the enterprise would be Lilliputian in conception as well as in size.

Universities must have the power to take fundamental decisions about their own development; they must have latitude to determine very largely for themselves how to fulfill their responsibilities to society. The tendency in Canada is to remove these powers from them. If this tendency is further accentuated -- indeed if it is not significantly reversed -- and if Canadian universities are not treated as part of a national and international network, then their prospects are for stultification and mediocrity.

chapter four

A NEW DESIGN FOR FEDERAL POLICY

The written constitution of Canada helps very little in defining an appropriate role for the federal government in matters pertaining to universities. The main reason for this is that the Canadian constitution is permissive rather than prescriptive: it assigns powers but does not say for what purposes or even to what extent those powers are to be used.

In the field of higher education, the British North America Act would permit an expansionist federal government to do far more than most Canadians would wish it to. Jurisdiction in educational matters is assigned by the BNA Act in the following terms:

> In and for each Province the Legislature may exclusively make Laws in relation to Education..., and there follow a number of restrictions on the powers of provincial legislatures in relation to denominational schools. There is also a clause conferring upon the Parliament of Canada the power of remedial legislation if a province abridges minority rights in the matter of separate or dissentient schools. The restrictions on the provincial education power relating to confessionality do not concern us here; the more sweeping qualification to the exclusivity of provincial legislative powers in education is contained in the phrase "in and for each province...", which implies that some aspects of education may extend beyond the area of uniquely provincial concern.

I do not propose, as subsequent argument will make clear, that the Parliament of Canada exploit to the full the qualifications on provincial exclusivity in education. I merely wish to emphasize that the relevant questions are those of political philosophy and not of constitutional doctrine. The matters that really count are the mutual respect which members of a political community should bear towards each other, their readiness to exercise self-restraint, given the sensitivities of local or regional communities, and their respect for each others' aspirations to collective achievement as expressed in the concept of nationhood.

No doubt there will be readers who will assert without qualification or nuance that education at all levels and in all respects is provincial. This is perfectly arguable, but scarcely as constitutional law. One of the features of our evolving constitution is that matters which are apparently, by the BNA Act, the exclusive concern of a single order of government have become shared between the federal and the provincial authorities. This has not occurred by a one-way process of raiding of powers, with the permission or acquiescence of the Supreme Court. On the contrary, both orders of government have obtained at least tacit sanction for policy initiatives in fields which, upon a casual reading of the constitution, appear to be unambiguously within the domain of the other.

Provincial legislators who work up their righteous indignation at any federal action which impinges upon educational matters would do well to reflect that the discovery of multiple aspects to policy areas is a time-honoured activity of politicians and judges alike. Members of the legislative assemblies have found provincial facets of several policy areas which, on the face of it, are exclusively federal. For example:

--several provinces are actively concerned with the development of the fisheries, though the federal parliament has exclusive jurisdiction over "Sea Coast and Inland Fisheries";

--rates of consumer credit are regulated by provincial law, presumably as an aspect of "Property and Civil Rights in the Province"; these laws exist notwithstanding federal exclusivity in relation to "Bills of Exchange and Promissory Notes" as well as in relation to "Interest";

--provinces legislate in relation to bankruptcy, both to prevent fraud and to assign assets among creditors, although "the Criminal Law" (which encompasses fraud) is exclusively federal, as is "Bankruptcy and Insolvency";

--several provinces have rejected proposed amendments to the federal Bank Act on the grounds that they intrude into matters historically treated as provincial (regulation of deposit-taking and loaning institutions such as credit unions and trust companies), in spite of

Parliament's nominally exclusive power over "Banking, Incorporation of Banks..." and "Savings Banks".

These remarks are not intended to challenge the reasonableness or wisdom of provincial action in any of these fields, but only to discourage any possible tendency to make categorical judgments about how the BNA Act apportions powers between orders of government. Persons who are satisfied that the words of the BNA Act do not prevent the discovery of a legitimate provincial concern in the matters just alluded to, can hardly be scandalized if others claim legitimacy for federal action in certain aspects of education, when such action serves purposes which are not limited to each of the provinces individually.

None of this, however, establishes even the shadow of a case for any federal involvement in the field of education. It simply tells us where not to look for evidence; it warns us about pre-emptive judgments. If we want to form an opinion on the appropriate scope and content of federal action in matters of concern to the universities, we should examine on its own merits the case for any federal initiative, respecting the constitution as a constraint on governmental action but not elevating it into a guide for policy.

4.1 EDUCATION, FEDERAL THEORY, AND CANADIAN PRACTICE

"By the federal principle," writes K.C. Wheare (1963: 10), "I mean the method of dividing powers so that the general and regional governments are each, within a sphere, coordinate and independent." This frequently cited definition presupposes the possibility of discovering "spheres" of policy which are relatively self-contained, so that governments can indeed act within them independently of each other. We have noted that in Canada such a neat division of powers does not exist; probably it never did. Wheare's definition takes no account of those federal systems, such as Western Germany's, in which policy-making is characteristically a joint activity involving two or more orders of government, with the central government passing laws of a general character, and the state or provincial governments filling in the details as well as seeing to their administration. A few areas of government activity in Canada are structured in this way, a notable example being the administration of the Canada Student Loans Plan by the provincial governments (except in Quebec). This form of federalism is sometimes described, rather tendentiously, as one in which the state or provincial governments are agents of the centre. And, in a recent speech, Newfoundland's Premier Peckford has opened up entirely new vistas for federal theory by alluding to Ottawa as "the agent of the provinces" -- but we shall resist the temptation to survey national affairs from so ultra-provincialist a standpoint.

There is considerable distortion involved in viewing one order of government as the agent of the other, and considerable lack of realism involved in supposing that each can operate within a neatly demarcated sphere, independently of the other. In Canada, most major policy areas have both federal and provincial aspects, and the important thing is to develop policies at both levels which are complementary to each other. This requires an amicable working relationship among governments in the pursuit of common aims -- not always easy, as the aims are not always held in common; but this is what we should be trying for. This principle applies to university affairs, no less than to other matters in which governments are involved as agents of the collectivity.

4.1.1 THE O.E.C.D. RECOMMENDATIONS REJECTED

In 1976 the Organization for Economic Cooperation and Development issued a review of education policy in Canada, one of a series of Examiners' Reports on education in individual member-states. The OECD Examiners, in this instance, noted that in 1975 the federal government spent about $2.5 billion on education-related expenditures, a little more than half of it channelled through the provincial governments. The total sum, including transfers to provinces, amounted to about 20% of educational expenditures at all levels (OECD, 1976: 90-93).

The Examiners declared, with a little exaggeration, that the federal government behaves in public as if there were no federal presence in the area of educational policy, since it presents its education-related activities as part of manpower policy, general economic policy, regional development policy, science research policy, social policy, foreign policy, and so forth. Still, they suggested, "A considerable Federal presence in educational policy is indeed tolerated by the Provinces and arouses no hostility, as long as nobody calls it educational policy, and as long as there are no overt strings attached to money coming from Ottawa" (OECD, 1976: 89; 83). This, too, I consider a bit of an exaggeration, but it leads to the central theme of the

Review which was expressed as follows (at pp. 90-91):

> Clearly, some basic elements of national responsibility [in education] arise because, in Canada today, as in all modern states:
>
> --education is a right of each citizen, due to each citizen irrespective of his place of residence;
>
> --the standards maintained by schools, community colleges and universities are of national interest because a large part of scientific-technical achievement and hence economic and social well-being may depend on them;
>
> --unity of the educational system is a national interest, in order to maintain and guard the freedom of choice (via mobility) of citizens;
>
> --the educational philosophy of an educational system and the principles underlying its operation are matters of national interest, because cultural and national consciousness depend on it.
>
> Each of the tasks listed would almost compel some participation by the national government. The last-named task is of such great importance for the future of Canada that it must be emphasized. The search for a "Canadian identity" will not be fruitful if it is not grounded firmly in education....A specifically Canadian identity is not likely to arise simply out of a wish to be different from the United States. It will come permanently only when knowledge, values and attitudes have so taken root that a critical mass of common attitudes has been guaranteed.

The recommendation for "some participation by the national government" in education, and for the recognition of a "national interest" in education philosophy and in the standards maintained by educational institutions, is a good statement of a form of nation-building which, for good or ill, Canada has consciously rejected. Canadians who love their country have chosen to gamble on the feasibility of maintaining a political community by embracing rather than by suppressing diversity. Indeed, diversity is institutionalized, not least through the creation of distinctive provincial systems of education expressive of the differences among Canadian communities, especially the linguistic ones.

It is no part of my intention in this report to challenge the wisdom of institutionalizing diversity. The provincial governments are important agents of their respective communities, and education is of key importance to them in creating a set of institutions which express, preserve, and promote the development of a culture. Nowhere is this of such importance as in Quebec. This is why most Canadians want the provinces to exercise primary responsibility over education, and why federal action in relation to universities must scrupulously respect and complement provincial policy.

4.1.2 THE PRINCIPLE OF SUBSIDIARITY

The principle which best, to my mind, justifies and at the same time prescribes limits to the role of the Canadian federal government was formulated in 1956 by Quebec's Tremblay Report, the report of the Royal Commission of Inquiry on Constitutional Problems. This report treats federalism not only as a form of government, but as a principle of social organization which insists upon the diversity and complexity of social life and believes (here the report quotes Jacques Maritain) that "the development of the human person normally requires a plurality of autonomous communities, having their own rights, their own freedoms, and their own authorities [areas of competence?]" (Tremblay et al., 1973: 93).

According to the social philosophy which pervades the Tremblay Report, society consists of a vast network of associations of which the state is one; the less encompassing associations and organizations, far from being emanations of the state, have an independent existence which must be respected and supported by it. The function of the state is to establish the conditions under which territorially and functionally smaller organizations can flourish and contribute to the realization of the common good. Accordingly, federalism is based on the principle that "with respect to individuals and lower [sic] groups, every collectivity must be satisfied to exercise a suppletory and subsidiary function, abstaining, consequently, from doing in their stead what they are able to do for themselves" (Tremblay et al., 1973: 93). This is the principle of subsidiarity, which calls for "a pluralist and decentralized organization, even in the political sphere" (p. 97).

Not every reader will find it to his taste to view "federalism" as broadly as did the authors of the Tremblay report, but the application of the principle of subsidiarity is nonetheless a sound one as far as the organization of a federal state is concerned. It simply means, in the Canadian context, that when common purposes require common action through government, there should be a presumption of provincial competence, and only when the provinces are unable to act effectively should the central government step in. (In addition, of course, federalism implies the restriction of provincial competence, for example in the matter of raising barriers to trade; but that is another matter and need not concern us here.)

Obviously, I believe that there is an appropriate role for the central government pertaining to the financial support of universities. It may then seem strange that I should appeal to principles contained in a report which condemned federal subsidies to universities (Tremblay et al., 1973: 163-4). What I propose is, however, quite consistent with the Tremblay report, as I wish to emphasize that any federal government action affecting universities must respect the primary responsibility of the provinces in all matters to do with education. The role of the federal government must not be to substitute for provincial action but to supplement and support it; and it must be so seen by the provinces. A provincial government which views federal involvement in university affairs as a challenge to its own policies and purposes has the legal and moral right to deny the universities within its borders access (direct or indirect) to federal funds.

4.1.3 THE JURIDICAL STATUS OF CANADIAN UNIVERSITIES

Most Canadian universities owe their legal existence to provincial legislation or to provincial charter. This in itself gives the provincial governments ultimate control over what the universities do, including the relationships they establish with other organizations. On this basis, the provinces could, if they believed it to be in the public interest, refuse the universities permission to receive financial support from any person or organization other than the provincial government itself.

This possibility is underscored by Quebec legislation and regulations (not to mention the historical case, 1952 to 1960, referred to in Section 2.3.2, above). The Intergovernmental Affairs Department Act (1974) prescribes that no public agency, a term which includes any corporation or agency "more than half of whose resources are derived from the consolidated revenue fund", shall enter into "agreements with another government in Canada, a foreign government, or with a department or agency of any such government", without having obtained prior authorization through the Department of Intergovernmental Affairs. Exceptions may be made by order-in-council (The Act, sections 21, 22). In consequence of this Act, orders-in-council have been required to permit Quebec universities and faculty to obtain research grants and contracts from the federal government and its agencies, including the granting councils. Two such orders have come to my attention. One, dated May 26, 1976, permits the receipt of research grants and contracts for sums less than $100,000 (implying that approval is required for larger amounts). The other, dated May 23, 1979, refers specifically to the federal granting councils. It states that all grants awarded by the councils, "dans la mesure où elles sont sollicitées par les universités du Québec ou formellement acceptées par elles ou par les chercheurs à leur emploi" fall within the scope of the Act; but it gives blanket exemption to those grants made under named programs of the granting councils. An implication is that new programs will require subsequent orders-in-council if they also are to be exempted.

4.1.4 PROVINCIAL CONCERNS AND RESPONSIBILITIES IN POST-SECONDARY EDUCATION

Under what circumstances might a provincial government feel impelled to tell the universities it supports that they must not take certain monies from another source? What sort of federal involvement in university affairs would the provinces regard as a challenge to their own policies and purposes?

It is clear enough from what the provinces have done to shape the development of the post-secondary sector (Section 1.5.2) and from provincial funding policies (Section 2.7.2), that all the provinces have similar objectives relating to higher education. It is equally clear, however, that each has fashioned its own policies to realize those objectives. The objectives held in common include:

--to maximize access to post-secondary education;

--to ensure that certain minimum standards of instruction are attained in all institutions and programs;

--to provide adequate manpower training to meet the province's expected future needs;

--to make sure that higher education in the province reflects the values, and more generally, the culture of the community (a concern which applies particularly but not exclusively to Quebec); and

--to meet these substantive objectives within reasonable levels of expenditure.

These objectives are sufficiently general in nature that their being held in common is no guarantee that distinctive provincial needs (for example in manpower) will not arise; certainly their realization is likely to require regionally distinct policies. For example, the goal of raising levels of access may be pursued through a number of different strategies, and varying local or regional conditions -- the spatial distribution of the population, for instance -- may point to the desirability of having different strategies in different parts of the country.

It is evident that a province which wishes to meet its responsibilities in these matters requires extensive powers, including the following:

--broad control over the structure of the post-secondary sector;

--determination of the means of supporting post-secondary institutions, at least to the level of their financial requirements (as judged by the provincial government); and

--the ability to see that the financial resources made available by the province are used for the purpose for which they were provided.

Post-secondary structure. Each province must be able to design a network of post-secondary institutions which suits its needs. Aspects of this power include determining what sorts of institutions, university and non-university, exist; deciding what relationship is to exist among them (for example, whether colleges are partially feeder institutions for the universities); promoting the development of the system, including institutional specialization, thus seeing to the availability of certain types of program for manpower and other purposes; deciding upon the number and the territorial distribution of universities and other institutions, and where it will support advanced or specialist academic programming; and providing for extension or outreach programming.

Techniques of financial support. Provincial governments must be able to select an appropriate combination of means for supporting, at whatever level judged to be consistent with public needs, the universities and other institutions. This power is necessary partly to control levels of public expenditure, partly to affect the pattern of distribution of funds among institutions (which is an important way of influencing the structure of the sector), and partly to maintain or raise levels of access. Because of its relevance to all three questions, the province must be able to decide what proportion of the public subsidy is to go directly to the institutions in operating grants, and what proportion is to be used for student aid.

Utilization of financial resources. It stands to reason that if a province subsidizes the universities and other institutions, it should be able to satisfy itself that the subsidy is being used for the purposes intended. For example, if a province is mainly concerned with the provision of instructional services, and only marginally with research performance, it should be able to expect that this preference will be reflected in the policies and practices of the institutions. Similarly, it should be able to satisfy itself that adequate standards are being maintained; it should be able to influence the allocation of resources between graduate and undergraduate instruction; and it should be able to draw upon research skills and other forms of expertise for purposes judged to be of importance to the province.

* * *

It will be clear, from the opinions I expressed regarding policy alternatives for provincial governments, that I would hope many of these powers would be used cautiously, and with due regard for their impact on the institutions themselves. Generally speaking, I would hope that provincial powers over post-secondary education are used in ways that support, not restrict, the development of the universities. It would also be most regrettable if governments' concern with manpower questions led them to interfere in academic programming, or if they disregarded the relevance of research to the maintenance of high standards in instruction. To put it in a nutshell, I would hope that the provincial governments see and respect the importance of university autonomy regarding the internal disposition of funds and the development of academic programming. But if a government interprets the public interest differently, the universities of the province are their own spokesmen; they must decide their own preferences and present their own case. If the case differs from one province to another, such diversity should not affect the recommendations of Canadian universities regarding federal policy.

The first step in formulating recommendations for federal policy is to make it clear that federal actions must not inhibit provincial government choices in areas which are understandably of provincial concern. It would do no good to recommend that Ottawa adopt a set of policies which would neutralize or counteract decisions made in the provincial capitals.

With this principle firmly in mind we may proceed to enquire into federal purposes in education and appropriate means of action to realize them.

4.1.5 FEDERAL PURPOSES IN POST-SECONDARY EDUCATION

When the OECD undertook its review of education policy in Canada, the federal government presented to it a Review of Educational Policies in Canada (Canada, Secretary of State, 1975), a document which detailed federal activities and expenditures relating to education. The Review explained why certain programs had been initiated, but such was scattered through the text. Even if this material had been collected into a single statement, its explanation of a federal role probably would have been fragmentary and incomplete. So far as I know, no general statement of federal concerns or purposes regarding education at any level has ever been made, perhaps because it would draw too much fire from the provinces.

Nonetheless, I believe it would be salutary if the universities of Canada formulated and endorsed a statement of what they consider to be Canadian purposes in higher education, distinct from but complementary to the purposes of each province. Where appropriate, they should express their support for federal action to help realize those purposes. It should be emphasized that in some cases interprovincial cooperation may be simpler and more effective than federal action in responding to needs which transcend the borders of particular provinces. Thus, there should be no presumption that whenever such needs are identified, the matter automatically calls for a federal presence. But where the direct involvement of the government of Canada is desirable, the universities should say so. If they have also made it clear what they consider to be the provincial governments' prerogatives in the field, a call for federal action to complement and assist provincial policies should provide a valuable basis for discussion among universities and governments, both federal and provincial.

Resolution 2: That the universities of Canada affirm the following Canadian purposes in higher education, distinct from but complementary to the purposes of each province; and that they encourage the Government of Canada to do likewise, while recognizing that any action it takes to achieve these purposes must be consistent with provincial government concerns and responsibilities in postsecondary education, and with the constitutional division of powers:

(1) To equalize so far as possible educational opportunity at the university level in all parts of Canada.

(2) To meet Canadian needs for the training of highly qualified manpower, to the extent that these needs are not being met by provincial policies in relation to post-secondary education.

(3) To sponsor and to promote excellence in research and scholarship, both to support cultural, scientific, and technological development in a general way, and to meet specific research needs of an applied or mission-oriented character. One facet of this responsibility is the training and retention within Canada of scholars and scientists.

(4) To support the use of both official languages of Canada for instructional purposes at the post-secondary level (as at other levels). This is the purpose

of bilingualism grants, which subsidize the provision of instruction in whichever of the two languages is in a minority position locally.

(5) To meet Canadian obligations to the international community, for example through:

--support of foreign students studying in Canada;

--financing programs of technological assistance or assistance to universities in foreign countries, and international exchanges of scholars and scientists; and

--supporting a Canadian contribution to international scholarship and research on a scale consistent with Canada's size and wealth.

These purposes do not correspond to specific federal programs, certainly not on a one-to-one basis. Indeed, I have emphasized that the realization of some Canadian purposes, as opposed to purposes of each of the provinces individually, may best be served by joint action of two or more provinces or by reciprocal arrangements among them. Nonetheless, the criteria for evaluating existing federal policies in relation to post-secondary education are supplied by our five-item resumé of federal purposes in this area.

4.2 A CRITIQUE OF FEDERAL POLICY

The largest federal contribution to post-secondary education, at least in terms of program costs, is through fiscal transfers to provincial governments under the Established Programs Financing arrangements (see Section 2.3.4, above). The Government of Canada also makes some specific-purpose grants to provincial governments to assist in certain types of programming, as in the case of bilingualism grants. Additional support for post-secondary education is provided through the Canada Student Loan Plan (CSLP) and tax relief measures for students or their families. The largest impact on the universities, however, is made through research funding (Section 2.4.2).

The critique of federal policy which is undertaken here assumes familiarity with the broad outlines of the EPF program, the CSLP, and federal research support policies.

4.2.1 EQUALIZATION OF EDUCATIONAL OPPORTUNITY; MANPOWER CONSIDERATIONS

The main rationale for federal subsidies to universities in the 1951-1967 period, and since then for federal fiscal transfers to provincial governments, has been to expand and maintain the availability of instructional services at the university level. This goal was adopted partly to serve the cause of equity, by making higher education more widely accessible than ever before, and partly to augment the supply of university-trained youth, thus spurring economic growth and contributing to the enrichment of the culture. Thus the largest program for the support of Canadian post-secondary education has a double purpose, and this requires us to look simultaneously at our first two criteria for evaluating federal policy: equality of educational opportunity (where the emphasis is on equity), and the supply of highly qualified manpower (where the emphasis is on social benefits, especially of an economic nature).

4.2.1.1 The Contribution of EPF

It will be recalled that the EPF arrangements cover two major health-care programs as well as post-secondary education, and that the size of the fiscal transfers in all cases is unrelated to program costs. Nonetheless both the cash component and the tax point component of the fiscal transfer are divided into three parts, each nominally for one of the three programs. Post-secondary education is deemed to account for about 32 per cent of the three-program total, and there is thus an identifiable sum of money which the federal government describes as a fiscal transfer in support of post-secondary education. The provinces treat the money, understandably, as unconditional, which, indeed in law, it is.

The fiscal transfer is a large one. In 1979/80 the post-secondary education portion was -- to take the cash transfer alone -- about $1.3 billion, a figure which corresponded to about 45 per cent of university operating expenditures in that year, excluding ancillary enterprises. An almost equal sum was "transferred" in the form of tax points, although since the relevant taxes are levied by the provinces, it is hard to see in what sense there is a continuing transfer, the tax points once having been ceded. I prefer to ignore the tax points and to concentrate on the monies which flow through the Consolidated Revenue Fund.

When the federal government revealed the outlines of the EPF arrangements to the provinces at an intergovernmental conference in June 1976, it seems to have expected to have a hand in certain aspects of provincial policy regarding post-secondary education, in return for its rather significant cash outlay. The Prime Minister said (Trudeau, 1976: 16):

> So far as post-secondary education is concerned, the federal government has a common interest with the provinces in achieving certain broad objectives. Indeed, it is in recognition and support of this common interest that the federal government believes it should continue to make contributions to post-secondary education costs. The establishment of a continuing federal-provincial forum at the ministerial level would, in the Government's view, provide an essential vehicle for realizing common objectives in this field. The broad subject areas of interest to both levels of government which the Government of Canada thinks should be kept under review in such a forum include, among others, the question of accessibility to post-secondary education; the extent to which it is practicable and desirable to rationalize on a national basis the use of existing post-secondary education resources; bilingualism in education; and the introduction into appropriate academic disciplines of a greater knowledge and understanding of Canada.

It is my impression that all the provincial governments resent any federal suggestion that it can buy its way into influencing provincial policies in any sphere, and least of all in education. It is different when the federal government has program responsibilities of its own, and coordination between federal action and provincial action is called for: on this basis there can be dialogue, although of course the provinces would prefer that the federal government stayed out of certain areas. Some provinces are more receptive to a federal presence than others; but all seem to be agreed that they do not wish to become in any sense agents of the federal government, especially when it bears no direct responsibility for the programs which, indirectly, it supports. Perhaps this is not really what the federal government had in mind in introducing EPF, but appearances were close enough to it to raise provincial hackles.

Actually it is hard to see how the federal government could have expected to have, through the fiscal transfers under EPF, an influence on any of the topics mentioned by the Prime Minister, except that of accessibility.

--If, through EPF, the federal government was angling for "the introduction into appropriate academic disciplines of a greater knowledge and understanding of Canada", this is profoundly disturbing since it implies that the provinces control the content of academic disciplines, and that the federal government wants a hand in it too. About all that might be done to achieve the federal goverment's goal -- and no doubt this should be done -- is to sponsor research and scholarship which will shape to some degree the development of academic disciplines; but that would occur through the usual processes of scholarly debate.

--Bilingualism in education, or rather instruction in the minority official language, is now an objective of the bilingualism grants paid to provincial governments. This goal is better pursued through such specific grants rather than through a blunt instrument like a $1.3 billion cash transfer to which no legal conditions are attached.

--The rationalization on a national basis of post-secondary education resources is either inappropriate for the federal government, as constituting too large an interference in an area of direct and exclusive concern to the provinces, or it is a goal which might be approached through research funding, indirectly, and with the general support of the provinces.

As far as accessibility is concerned, the potential impact of EPF is limited to the encouragement the program might be presumed to offer to the provinces to make generous operating grants to post-secondary institutions. There appears to be some tendency on the federal side to argue that, if it supplies monies for a specific purpose (even though the size of the fiscal transfer does not depend on levels of provincial expenditure), the provinces should still go on spending their own tax dollars in the area on the same basis as before. In that case, with the addition of the federal money, there would result a higher overall level of expenditure on the program(s) concerned.

If this was the reasoning, EPF is a failure. The provinces understandably treat the fiscal transfers as general revenue. They decide what to spend on higher education by estimating the financial needs of the institutions, the money needed for student aid, and other program requirements. This is the only procedure consistent with the public interest of the province. Moreover, the data demonstrate that this is what has been happening. Between the fiscal years 1978 (the first EPF year) and 1980, seven of the provinces reduced their own (current-dollar, not constant-dollar) contributions out of the provincial tax revenues, to the support of post-secondary institutions. This statement is based on my calculation of the "net cost to the province" when federal cash transfers are subtracted from provincial operating grants to institutions.

4.2.1.2 The Canada Student Loans Plan

In every province student assistance is provided through an integrated program of grants and subsidized loans, with most of the loans portion being offered (except in Quebec, for which a separate intergovernmental agreement is in force) through the Canada Student Loans Plan. It is not possible to distinguish the impact of the CSLP portion of the program from the rest, so one cannot estimate how large a contribution the CSLP makes to accessibility. (It may be also impossible to estimate how greatly student assistance programs as a whole contribute to accessibility, although one surmises that they are absolutely vital for almost all of those students who qualify.) In 1978/79, one third of all full time post-secondary students received loans through the CSLP, with the percentages varying by province from 25 to 57 per cent.

In 1977/78 the total cost of the CSLP, about $43 million, was four per cent of the cost of the cash transfers to provincial governments under EPF. This relatively small sum of money must be presumed to have made an essential contribution to accessibility, even though its effects cannot be quantified.

4.2.1.3 Access, Manpower Training, and the Interprovincial Mobility of Students

One way the federal government may contribute both to the equalization of educational opportunity and to the meeting of Canadian needs for certain types of specialized manpower is by promoting the interprovincial mobility of students. In doing so it perhaps may reap an additional advantage in fostering understanding among regions by bringing together youth from different parts of the country during their university years. This can be important also for academic reasons in certain areas of study, such as history and the social sciences.

The interprovincial mobility of students extends educational opportunity simply by broadening the range of choices available to them. Academic programming, even at the undergraduate level, is not a standard product, and therefore, if prospective students have access to universities across the country on an equal basis, this widens their opportunities. Of course, the freedom to attend an institution outside the home province is especially important if the province has relatively few universities, if the student lives closer to an out-of-province university than to a suitable institution within the province, or if the program in question is a specialized one. Indeed, some programs of a specialized character may be viable only if they draw upon an interprovincial clientele. Certainly their quality may be improved if they do.

If provincial governments support university education in part because they think that they will need the manpower, then there arises an additional argument for the interprovincial mobility of students. The premise of the argument is that the labour market for university-trained people is at least interprovincial; in many categories it is international. This being the case, provinces have a disincentive to invest as heavily in university programming as they would if (a) it could not import the necessary manpower, and (b) if it were not aware that many of those trained in the province would eventually go elsewhere. Briefly: if subsidizing higher education is an investment decision, there is likely to be sub-optimal investment because the labour market is continental.

There is ample evidence to show that, at the university level, education -- if seen as an investment in human resources -- is certainly not only "for the province" in the sense implied by the phrase, "In and for each Province, the Legislature shall exclusively make Laws in relation to Education...". This is shown by data on the interprovincial mobility of university graduates (Table IV-1). Not surprisingly, holders of graduate degrees have even higher mobility than indicated in the table, which applies to all university graduates. On this matter, a 1967 survey of degree-recipients in science and engineering, undertaken by the federal Department of Manpower and Immigration, produced some striking figures. One was that of all provinces, only Ontario retained as many as half of its Ph.D. graduates (Tables IV-2). More recently, the Canadian Association of Graduate Schools surveyed the immediate post-graduate employment of Ph.D.'s in all fields (convocations of autumn 1977 through spring 1978). Of the 1091 Canadian and landed immigrant Ph.D.'s who were employed and whose place of employment was known, only 589 or 54 per cent were employed in the province in which they obtained the degree (Watt, 1979).

One may speculate whether or not the high mobility of university graduates, particularly the recipients of graduate degrees, reduces the willingness of the provincial governments to support university education. This is a matter on which the evidence is unlikely to be very firm. Still, it is worth noting the remark of John B. Macdonald (1969: 311) and his fellow commissioners, that:

> In our hearings at Canadian universities we heard that the high mobility of graduate students made some of the provinces question the appropriateness of their support of graduate training. Why should they pay large costs for students who came from outside the province for graduate studies and upon completion of these studies left the province for other parts of Canada? The problem is particularly acute in the smaller provinces which tend to lose a larger fraction of the students they train.

Consistent with the evidence picked up by the Macdonald commission is the fact that most provinces restrict the interprovincial mobility of students by offering less generous financial assistance to residents who study outside the province than to those who attend an institution within it. If equity -- a desire to promote equality of opportunity for the youth of the province -- were the dominant consideration, this restriction on their choices would not be rational. Perhaps the provinces which do this (a) pre-

TABLE IV-1

INTERPROVINCIAL MOBILITY OF UNIVERSITY GRADUATES

	PUST data (1971)		1973 Statscan Study	
province of current residence	per cent who completed secondary school in prov. of current residence (1)		per cent who completed secondary school in prov. of current residence (2)	per cent whose last earned degree was in province of current residence (3)
Nfld.	69	(52)	81	55
PEI	NA	NA	65	35
NS	62	(123)	75	71
NB	75	(89)	72	63
Quebec	79	(1039)	87	86
Ontario	64	(1503)	81	82
Manitoba	70	(189)	79	80
Sask.	72	(109)	84	74
Alberta	57	(349)	66	68
BC	57	(370)	70	70

Notes: (1) The data presented in this table concern only interprovincial mobility of university graduates; the table excludes data on current residents who completed secondary school outside Canada (columns 1 and 2), and data on current residents who completed their last earned degree outside Canada (column 3).

(2) PUST data are for all respondents aged 20 to 34 with university degrees, who completed high school in Canada. In some provices the sample was quite small, and accordingly the sample size (N) is given in brackets.

(3) Statscan data are for respondents in September 1973 who had an earned Canadian university degree on June 1, 1971, i.e., the data exclude those who had graduated from university within the previous two years.

Sources: (a) Calculated from data in Public Use Sample Tape (PUST) from 1971 Canada census.

(b) Educational Profile of University Graduates, Statistics Canada, 1976 (Cat. 81-566, occasional).

TABLE IV-2

MOBILITY OF DEGREE RECIPIENTS IN SCIENCE AND ENGINEERING

Province where degree obtained	Percentage Remaining Within Province			Bachelor's degree recipients moving to graduate schools: percentage remaining
	Ph.D. (1)	Master's (2)	Bachelor's (3)	(4)
British Columbia	25.7	57.3	64.2	34.8
Alberta	44.9	53.2	62.7	35.9
Saskatchewan	30.8	38.2	39.8	34.3
Manitoba	30.8	51.3	37.1	37.4
Ontario	65.0	72.9	77.3	62.5
Quebec	40.8	58.4	75.0	54.1
New Brunswick	10.0	39.7	25.8	26.7
Nova Scotia	28.6	42.4	32.9	30.0
Newfoundland	--	100.0	63.3	23.0

Source: John B. Macdonald *et al.*: *The Role of the Federal Government in Support of Research in Canadian Universities*, Special Study No. 7, Prepared for the Science Council of Canada and the Canada Council, 1969. Appendix 2. (This appendix was based on a 1967 survey undertaken by the federal Department of Manpower and Immigration. Number of respondents: 64, 170).

sume that a person who goes elsewhere to study is more likely to stay away for good than someone who takes a degree locally, and (b) are less willing to support the schooling of a person whose skills and talents will be put to use in a province other than their own. This is precisely the phenomenon which Macdonald and his fellow commissioners noted.

Alternatively, a province which withholds grants from students attending university elsewhere may be worried that some of its best students will be recruited by out-of-province universities. Attempts to discourage this are tantamount to admitting the inferiority of universities within the province, and manifestly reduce educational opportunities for its youth.

How is federal policy relevant to this matter? One of the features of the Canada Student Loans Plan is that it is portable. Although the provinces administer the CSLP, a condition of its availability to residents of the province is that it cannot be used, as provincially funded grants or bursaries can, to restrict the mobility of students. In this way, the federal government does assist, very mildly, the interprovincial mobility of students.

The support given by the granting councils to graduate students also has some effect on the interprovincial mobility of students. Obviously, this factor does not apply to undergraduates, so the vast majority of Canadian university students are unaffected by the policies of the granting councils in this respect. Nonetheless it is significant that approximately half the Canadian and landed immigrant graduate students in the natural sciences and engineering are supported, directly or indirectly, by NSERC (Table II-14). This is a powerful factor assisting the movement of students to the university or program best suited to their needs and interests; and it is a factor which operates at the level where interprovincial mobility is particularly important.

One other factor, a politically sensitive one, needs mention in the present context. It is obvious that, if provinces started requiring universities to impose higher fees on out-of-province students, such an action would impose a formidable barrier to the interprovincial mobility of students. That this issue is a touchy one was shown when several provinces introduced fee differentials which discriminate against those on student visas. At that time some concern was expressed in university circles about the spectre of differential fees for out-of-province students. This brought angry denials from provincial spokesmen who insisted that no such move was contemplated.

The denial of any intention to impose higher fees on out-of-province students was temporarily reassuring, but the delicacy of the subject ought not in my opinion to intimidate the universities from raising the matter again. One in no way questions the good faith of any provincial minister of education if one points out that governments change, as do the circumstances which impel them to certain types of action; and it is quite possible that a differential fee structure might look very attractive to some of the provinces in ten or even five years' time, if it does not already. Only two factors stand in the way of a policy reversal on this matter. One is the commitment of all provinces to a spirit of mutual cooperation, and the recognition of reciprocal benefits flowing from integration of the Canadian community. Of this, it should be noted that the same factors have not prevented the imposition of differential fees in the United States, a country which has shown fewer strains on its national cohesion in recent years than Canada has. Moreover, one notes an increasing tendency among the provinces to raise barriers to trade and to the free movement of labour and capital. These observations make the protection against differential fees seem rather thin.

The other factor militating against discriminatory action by the provinces in the matter of fees is the presence of the federal government in post-secondary education through the fiscal transfers. Has Ottawa, through its financial contribution, the leverage to prevent the raising of such a formidable barrier to the interprovincial mobility of students? Would one want such leverage to be brought to bear? My own answer, to both questions, is, No. The instrument of withdrawing the cash transfers under EPF is too blunt, and its use would be bitterly resented. I have already expressed my distaste for any notion that the federal government, through EPF, buys influence in policy areas which the provincial governments quite properly regard as being their own preserve.

It would be far preferable if federal action could eliminate the financial incentives, which some of the provinces now have, to raise the tuition fees charged to out-of-province students. The feasibility of federal action which might have this effect will be discussed in Section

4.2.1.3

4.3.4. In the meantime, it is important simply to observe that federal policy does assist moderately, but only moderately, in promoting the interprovincial mobility of students. Policies which, without making the provinces in any way subordinate to the federal government, went much further in doing so would make a significant contribution to postsecondary education in Canada, in a way that present policies do not.

4.2.1.4 Federal Support for Specialized Programs

Certain programs which draw upon an interprovincial clientele and serve manpower needs relevant to federal policy areas may be supported directly by the federal government through the departments concerned. I am unaware how extensive this practice may be, but an example which comes readily to mind is that of veterinary medicine.

So far as I know, this form of federal support is welcomed by the provincial governments, partly because the federal commitment is a long-term one; there is no suggestion that a program once launched with federal money will subsequently be left for the provinces to pick up on a continuing basis.

This form of federal intervention appears to be based on an evident need; it is uncontroversial, and in every way desirable. It is a way of responding to manpower needs, and to some extent, of widening educational opportunity, and it might conceivably be applicable in a number of areas. This report will however, make no recommendation on the matter.

4.2.2 PROMOTING EXCELLENCE IN RESEARCH AND SCHOLARSHIP

It has been the mandate of the granting councils to sponsor research and scholarship, and in doing so to promote excellence; and within the constraints imposed by their budgets, they have committed themselves wholeheartedly to this task. The manner in which they have done so was detailed in Section 2.4.2, and need not be repeated here. Only a few comments, more on the situation of the councils themselves than on the programs they have implemented, are called for in the present context. In addition, it will be useful to note briefly certain services, such as those provided by Statistics Canada and the National Library, which provide a basic resource for Canadian scholarship.

4.2.2.1 The Granting Councils

The priorities identified by the granting councils in recent planning exercises are ones which, translated into activities and programs, stand to benefit Canadian scholarship and research enormously. They are particularly important in view of the prospective enrolment situation in the universities, which leads one to fear further constant-dollar cuts in provincial operating grants. The probable consequences of no-growth or shrinkage have been discussed in Chapter I, especially the danger of general sclerosis: an incapacity to innovate or respond to new research challenges and to new social needs. It was suggested that the most serious problem which the universities will face over the next decade or two is the aging of present staff and the inability to hire young faculty. This incurs the danger of losing a scientific generation, and partly because talented young people will shun graduate work when the career prospects it leads to are bleak, partly because the universities will be able to hire very few of those who do take professional training in an academic discipline. Under these circumstances, the emphasis given by the granting councils to the opening up of career opportunities in research is a decision of extreme importance to Canadian scholarship and science.

Other areas of importance for the councils, in addition to immediate tasks such as supporting the re-equipping of laboratories, include stimulating the circulation of people and ideas, for example by sponsoring visiting professorships and providing greater assistance to scholarly and scientific associations, mainly for the support of journals. During the 'seventies there has been a noticeable slowing down of faculty mobility, and special measures are needed to counteract the staleness which may result from"growing old together".

The question of greatest importance, however, is not whether the granting councils have exactly the right priorities or might improve their programs in certain specific ways (important though these question are), but rather, whether the councils can expect adequate appropriations from axe-wielding Presidents of the Treasury Board.

It will be recalled (see Section 2.4.2.3.2) that the federal government's desire to see greater emphasis placed on those research projects having a quick and tangible payoff in terms of technological innovation or improved delivery of government services, has led it to urge the granting councils to devote more funds to targeted or mission-oriented research. An extra appropriation ("thrust funds") was granted for this purpose in 1978, so that the new objective could be met without cutting back on the more traditional programs of the councils, namely the ones which sustain excellence in research and scholarship in a general way and are essential for the maintenance of a base of expertise which is capable of being turned to for specific tasks as they arise. However, when later that year an austerity program was announced, the budgets of the councils were cut back again, leaving the new programs intact but requiring the trimming of the basic programs. This incident is a frightening one, since it points to the financial vulnerability of the granting councils and the "softness" of federal support for those aspects of council activities which build up and maintain a basic research capability. Without it, there will be little capacity to undertake mission-oriented work, particularly as priorities seem to be reordered with disconcerting frequency, and with little warning.

As one reflects upon the situation of the granting councils and the cabinet's attitude towards them -- indeed, towards the promotion of excellence in scholarship and research as the basic requirement of any science policy — one cannot but contrast the size of the allocations for these purposes with the size of the cash transfers to provincial governments, the historical remnants of a program designed to assist Canadian post-secondary education. If Parliament, in making these transfers intends to support universities and other post-secondary institutions, it needs to be said loud and clear that the $1.3 billion in cash transfers are far less important to the universities than the $200 million spent on the sponsorship of research. Stable funding for research, and, if possible, the allocation of significantly larger appropriations for this purpose, are vital now to Canadian scholarship and to Canadian universities; they will become increasingly important in the years ahead.

4.2.2.2 Information Services

A relatively cheap way (at least when the standard of comparison is $1.3 billion) in which the federal government can support research and scholarship is through the provision of information services. In most cases such services can be provided by no other government or agency as efficiently or as well. Statistics Canada, the Canada Institute for Scientific and Technical Information (CISTI), and the National Library of Canada are examples of agencies providing such services.

I am unable to comment on CISTI, but it is clear that Statistics Canada and the National Library are both mediocre organizations relative to what they should be, at least in terms of the support they provide for academic users of their services.

The Dominion Bureau of Statistics in the two decades or so following World War II had a well-deserved reputation as a world leader among government statistical agencies, a position it has ceded to a number of other countries which now provide generally more extensive and superior statistical information. The availability of good data is an invaluable resource for all of the social sciences, a resource for which there is no substitute. If politicians and leaders of the Canadian community deplore the tendency of many Canadian scholars to do research pertaining to countries other than their own, and indeed to neglect the home terrain, they should realize that one of the reasons why this sometimes happens is that the essential information for certain types of research is simply not available here. One has to make do with work on foreign countries, and then to raise speculative questions about the applicability of foreign research to a Canadian setting.

Three examples might help to illustrate the point. First, Canada is one of the few leading industrial countries without a national longitudinal panel for the gathering of comparable data over a period of five or more years (the same respondents are interviewed on several occasions over a period of years). Another example: in the mid-'seventies there was an international organized World Fertility Survey, a subject of (literally) vital concern to all; but Canada did not participate and is one of the few countries for which information on the subject was not collected in such a way that it is comparable to internationally available data. Finally, we may note that in 1971 the Canada Census followed the lead of the United States and several other countries in making data available to researchers in the form of a public use sample tape (PUST), a facility which has been used by many researchers to do studies otherwise impossible; one case is the work done in this report on educational attainment (Section 1.2.2). Present indications are, however, that this facility will not be made available from the 1981 census.

Regarding the National Library, it is regrettable to note the insufficiency of bibliographical work which such an agency should provide. In this respect Quebec's Bibliothèque nationale has put the National Library to shame. Its cataloguing services are insufficient (if improved they could save university libraries some money); and its collection of government documents, especially at the provincial level, is poor. The National Library, if organized as a service to libraries across the country -- not just university ones -- could do a great deal to improve their quality and/or reduce their operating costs; but it acts more like an Ottawa public library than as a national institution.

It is not my intention here to blame any particular person or group for the quality of federally provided information services; I have no idea in what proportions one should lay opprobrium on the management of the agencies concerned, and to what extent on the insufficiency of funds they have to work with. Quite possibly those in charge are performing heroically on a shoestring budget. Be that as it may, what is important to note is that the insufficiency of federal information services constitutes a serious obstacle to the attainment of excellence in some academic disciplines and an insuperable obstacle to certain kinds of research. Moreover, although I am unable to judge the opportunities for financial savings to the universities if better information services were available, it is quite possible that they would be significant.

4.2.3 SUPPORTING MINORITY LANGUAGE INSTRUCTION

I have proposed that the universities of Canada endorse, among other things, federal support for the use of both official languages of Canada as media of instruction at the post-secondary level. It is an existing policy to do this through the provision of bilingualism grants which are paid, be it noted, to the provincial governments after bilateral negotiation, and not directly to educational institutions. It would take us too far afield, however, to evaluate the bilingualism grants program or to canvass possible supplements or alternatives. The matter will not be pursued any further in this report.

4.2.4 MEETING INTERNATIONAL OBLIGATIONS

If Canada has obligations to the international community in matters pertaining to higher education, research and scholarship, it is reasonable that the federal government should shoulder at least part of the financial burden to meet them. It has a broader tax base than any of the provinces and is primarily responsible for the conduct of foreign affairs ("primarily" because the provinces also have trade, immigration, and cultural concerns which have some international as well as domestic ramifications).

--Foreign students. When, recently, several of the provinces announced higher fees for those on student visas, the move was variously regretted or denounced by the universities and by student groups. There were good reasons for disappointment, some of them relating to the fulfilment (or non-fulfilment) of external obligations, and some of them stemming from a well-founded conviction that an international student body offers cultural and academic advantages for Canadian students. I am not sure, however, that the provinces concerned can be heavily censored for their action since the level at which fees were set was still obviously well below per-student costs; and if there is an obligation to accept non-Canadians on student visas, then the cost of doing so should be mainly Ottawa's. The federal government, however, does very little either to support foreign students or to compensate provincial governments for the cost of giving them a university training.

--Assistance to foreign universities, international exchanges. Federal programs in these areas do exist although I am unable to comment on their adequacy. It deserves mention, however, that there is an element of self-interest in such programs. This is especially so at a time when the universities are unable to hire many new faculty. Under such conditions, it is important to bring in fresh ideas by giving existing faculty opportunities to broaden their personal and academic experience.

--Contributions to international scholarship and research. The adequacy of Canada's effort in this area is even more difficult to appraise than its role in relation to foreign universities. All, I think, that can be said on this subject is that adequate support for research is important for reasons which are entirely self-interested. It is a bonus if Canada has a respected place in the international scientific and scholarly community, and makes a valuable contribution to cooperative international efforts in various areas of applied research.

4.3 POLICY RECOMMENDATIONS

The rationale for federal involvement in certain matters pertaining to universities was discussed at the outset of Section 4.1; and a proposed declaration by Canadian universities, recognizing specific federal purposes in the field, was presented in Section 4.1.5. The recommendations of this report relating to the role of the federal government can be understood only in the context of these earlier remarks.

Two broad limitations on federal activities must also, I would suggest, be recognized and observed by the Government of Canada.

--First, the federal government must scrupulously respect provincial concerns in post-secondary education (Section 4.1.4), since it is the provinces which have primary responsibilities in the area.

--Second, federal initiatives and activities must not impose costs on the provincial governments, whether by requiring complementary expenditures from the provincial treasury, or by initiating an activity or program for which the province will subsequently be expected to assume the costs.

The federal government has, in my opinion, been careless about observing these limitations in the past. I think it has become clear in retrospect that direct general-purpose subsidies to the universities between 1951 and 1967 gave the universities a special position in the post-secondary sector, a situation which Quebec could not tolerate because it interfered with the structure of its education system. Both in Quebec and in other provinces the federal subsidies, if prolonged beyond 1967, might have interfered with the provinces' attempt to create networks of institutions (including ones not granting degrees) corresponding to their particular needs in post-secondary education.

Since 1967, the federal fiscal transfers have been invoked by the Government of Canada to justify its desire to participate with the provinces in policy formation for the post-secondary sector, or to excuse certain actions which manifestly did impose costs on the universities (and ultimately on the provincial governments). In the latter case, the federal argument has been that it pays at least half the costs of post-secondary education, so the provinces ought not to quibble about matters such as the indirect costs of federally supported research. The provinces have never been happy with this attitude. The federal viewpoint is difficult to sustain when the taxes which it treats as a "federal revenue reduction in support of post-secondary education" are levied by the provinces, and the cash payments are, in law, unconditional.

It is high time that the federal role in post-secondary education be recast, removing any suggestion that the Government of Canada may exercise, by virtue of fiscal transfers, an overall influence on the policies and priorities of the provincial governments. Instead, I propose:

Recommendation 1: That the Government of Canada redesign its policies and activities in relation to universities, in accordance with readily identifiable purposes; and that it do so through the implementation of distinctly federal programs which dovetail with and supplement provincial action in post-secondary education.

The appropriate areas for federal action are ones in which there is already a federal presence: the sponsorship of research, student assistance, promoting interprovincial mobility of students, information services, and responsibilities to the international community. The extent and substance of federal activities in each of these areas should, however, be reassessed.

4.3.1 SPONSORSHIP OF RESEARCH

The first requirement of a policy for the sponsorship of research is that it provide stable support at whatever level the federal government decides can be maintained over the longer term. Individual projects may not be of long duration, although many of them are; but the facilities and skills required for research cannot be created overnight, applied to tasks temporarily given high priority, and subsequently left fallow in periods when not urgently needed.

A basic infrastructure in plant, facilities, and equipment is required; and talented researchers must have continuous opportunities to expand their knowledge and develop their skills. A line of research consisting of a string or elongated cluster of related projects cannot progress satisfactorily on stop-go funding.

Recommendation 2: That the Government of Canada recognize the importance of stability in the funding of research by committing itself to minimum constant-dollar appropriations for the granting councils, on a multi-year basis, e.g., by guaranteeing a budgetary allocation pegged to the rate of growth in the GNP.

Recommendation 3: That the Government of Canada endorse the objectives identified by each of the granting councils in the plans they have formulated, and fund the councils at a level sufficient to implement those plans.

The arguments supporting this recommendation have been cogently put by the councils themselves. The universities, given their enrolment and financial prospects for the next decade or two, badly need the support which implementation of the councils' plans would give them. Indeed, I believe it is important to go much further than proposed in recommendations 2 and 3, and to significantly expand the federal sponsorship of research to realize a number of objectives which are important to the universities in the present context, and which would also appear to support the policies and plans of the provincial governments in relation to the development and financing of the universities.

One major objective of this policy initiative would be to promote the conduct of research independently of graduate instruction, so far as it is possible to do so. Obviously, this will be easier to accomplish in some academic disciplines than in others; but where progress can be made in this direction, some of the incentive for expanding or retaining graduate programming will be removed. Fuller use also will be made of Canada's research capability, especially in smaller universities and perhaps in some non-university institutions which have the necessary basic facilities and staff resources. For example, according to the Quebec white paper on research (see Sections 2.4.2.2.3 and 2.4.2.3.3.)

the CEGEPs have a large, quite untapped, research potential. There is no reason why the staff of such institutions should not apply for federal research funds on an equal footing with faculty in those universities already heavily committed to research. In a formal sense, they do so now, but the terms of council awards frequently preclude their utilization. What might make the difference is to broaden the coverage of (costs met by) the awards. This is proposed in the following series of recommendations:

Recommendation 4: That the Government of Canada open discussions with the provinces with a view to augmenting the financial resources of the granting councils on the understanding that they will:

(a) cover indirect costs, and

(b) compensate universities and other institutions for release time for staff whose research they support.

Recommendation 5: That, in the case of research grants, allowances for release time be made on the basis of a reasonable estimate of the time a competent researcher should spend on the project, subject to later submission of a new grant application; and that in the case of contracts, such allowances either be made on the same basis, or by ex post reckoning.

Recommendation 6: That allowances for indirect costs either be negotiated with each institution at a standard rate for that institution, or be fixed at a level representing an average of indirect cost ratios among representative institutions, presumably about 50 per cent of direct costs including release time (a figure drawn from the CAUBO Pilot Study on the Costs of University Research).

Recommendation 7: That those portions of grants and contracts relating to release time and to indirect costs be awarded to the institution employing the researcher, and be treated by it as general revenue.

These recommendations would have the effect of increasing, at least on average, university incomes from sponsored research. They differ in a number of ways, however, from suggestions that the provincial governments separate the funding of teaching and research. What is proposed here utilizes existing machinery and draws on accumulated experience in the administration of research awards; it would not be necessary to formulate new criteria or to devise entirely new techniques for allocating research monies to universities. The changes proposed could be phased in either by making a first rather modest allowance for staff time and for indirect costs, and gradually increasing them as the consequences of increased reliance on the sponsorship of research in the financial support of universities became clearer; or alternatively, some grants might have more generous financial terms than others and be awarded at first only in cases of exceptional merit or promise.

Another way in which these recommendations differ from proposals for the separate provincial funding of teaching and research is that our recommendations carry no implication of comprehensiveness. They therefore could not lead to queries about whether a university, or the universities generally, were respecting the relative importance of teaching and research, as judged by the public authorities and as implied in the proportions of the operating grant respectively assigned to or deriving from the two functions. Perhaps most important of all, the initiative of individual researchers or groups of researchers would be preserved; and the control of research funding would not become an additional device for controlling the development of provincial university systems.

Implementation of the cluster of recommendations dealing with federal sponsorship of research would require thorough and probably lengthy negotiations with the provincial governments. Discussion of this important question will, however, be left for Section 4.4, after the formulation of additional recommendations also requiring the coordination of federal and provincial policies. In the meantime, we should reflect a little on the ramifications which extended federal funding of research would have on the universities.

One implication is that, not only would the universities have an opportunity to derive a much larger proportion of their operating income from the sponsorship of research, but a large proportion of the funds received under this heading would be available to the university for general operating purposes. This is obvious in the case of the indirect costs portion of grants and contracts; the release time portion would finance a reduction in teaching and other duties, making a part of the researcher's salary available either for avoiding bankruptcy or for turning to other purposes including, potentially, the hiring of junior faculty to meet teaching needs in those departments or faculties which are judged most urgently to require them. The sums of money which might become available in this way would in some cases be large and, if so, would give the university a degree of financial freedom, and flexibility in the internal use of funds, which would respond directly to the problems of no-growth or shrinkage discussed in Section 1.4.

Not all departments or institutions would be very successful in the competition for research funds, a competition which no doubt would be sharpened by the more generous terms of the grants which would be available. The institutions or departments concerned would either have to find ways of improving their research capacity and performance, or perhaps concentrate on excellence in teaching, expecting a more modest publication record from their staff. The choices which, one way or another, would have to be made within each institution, might lead a considerable distance towards role differentiation. It will be recalled that this is a fondly held objective of several provincial ministries of education or universities' commissions, but that generally speaking, they have had little success in inducing universities, by administrative pressures, to give primacy to undergraduate teaching and to nurturing their reputation for excellence in this function.

One reason why the proposed new arrangements for funding research might lead the universities, of their own accord, to achieve what hitherto has proved impossible by the power of official suggestion, is that the coverage of indirect costs, and especially of grants for release time, would noticeably change the relationship between faculty and their employing institution. Some faculty would be expected to be -- as in fact they probably already are -- much more oriented towards research than others who would concentrate, relatively speaking, on teaching. All, of course, would be expected to keep up in the literature in the area of their specialization and, in the sense of reflective enquiry, to engage in research, though not necessarily for publication.

So long as the province employs appropriate financing techniques, which make those universities concentrating on excellence in undergraduate teaching financially viable, the staff who contribute most effectively to the university's reputation in this area should be valued by them for this contribution.

This remark points to a potentially very serious problem regarding our recommendations for the funding of research. If fees income and provincial operating grants together do not reflect undergraduate enrolments -- that is, if a university's financial position is not affected at least over the longer run by its success in drawing students -- then more generous funding of research would probably have strongly negative effects on teaching performance. Staff would be valuable to the university directly in proportion to their ability to draw in research funds, and they would tend to neglect their teaching in order to compete effectively for grants and contracts; the university administration might even encourage them to do so. Serious though this matter is, it is not so much an insuperable objection to what I have proposed regarding research funding, as a further reminder of one of the basic facts of university finance: that changes in one area necessarily entail corresponding changes in other areas. No single topic can be treated in isolation.

4.3.2 STUDENT ASSISTANCE

A federal-provincial task force is, at time of writing (summer 1980), conducting an enquiry into all aspects of student assistance in Canada. Its mandate includes: "[to] formulate alternatives for the continuation, modification, or replacement of the existing federal and provincial government policies and programs". Partly because the task force is doing the job, and partly because, in preparing this report, I have done relatively little work on student assistance, no attempt will be made here to present detailed recommendations on the subject (but see the discussion of some of the issues in Section 3.4.3).

The one comment I should like to make is that if, in view of the work of the task force or for other reasons, interest is revived in a contingent-repayment loans scheme, such a program probably could be implemented most efficiently on a Canada-wide basis. It is, in a sense, analogous to an insurance scheme, for which the broadest possible base is desirable. Moreover, data on the Canada Stuent Loans Plan show that in the Atlantic provinces a relatively high proportion of post-secondary students qualify for assistance under the Plan. This datum suggests that it is a mildly redistributive measure, in regional terms; and this is certainly comprehensible since incomes in the Atlantic region are below the Canadian average. It follows that federal sponsorship of a student assistance plan involving income-contingent loans or other forms of loan remission might appreciably improve and equalize educational opportunities. These, as I have earlier suggested, are important objectives for the federal government to support.

Another reason for considering federal sponsorship of a contingent-repayment loans scheme, or for that matter the implementation of a federal loan remission plan, is that either type of program could be introduced as a modification to the Canada Student Loans Plan. As in the case of the CSLP, it might be judged desirable to have the provinces administer the new program, together with student assistance programs of their own, on an integrated basis.

Recommendation 8: That, if the Federal-Provincial Task Force on Student Assistance expresses interest in an income-contingent loans scheme, or otherwise recommends the extension of the loan remission plans operating in some provinces, the Government of Canada explore with the provinces how it might appropriately contribute to the implementation of such recommendations.

The conditional wording of this recommendation recognizes that fuller treatment is being given to the subject elsewhere. I have raised the issue here because a more prominent federal role in the area of student assistance would be consistent with the statement of federal purposes presented in Section 4.1.5 (equalization and extention of educational opportunity). It might also be important to the provinces in facilitating any move they may wish to take in the direction of transferring to the students a larger share of the costs of post-secondary education. As noted in Section 3.4.3, however, the wise move is to make improvements to student assistance first, and start shifting costs to students later, if at all.

4.3.3 PROMOTING INTERPROVINCIAL MOBILITY OF STUDENTS

A more prominent federal role in student assistance would do much to promote the free interprovincial movement of students. This at least I presume, since the portability of benefits would almost necessarily be a feature of any federal scheme, as it now is of the CSLP.

It would be unsatisfactory, however, if the federal government relied on an expanded program of student assistance to attain or guarantee the free interprovincial mobility of students. The bulk of university operating costs are borne by the provincial governments, even if ultimately financed in part by federal cash transfers. For this reason I am perturbed (see Section 4.2.1.3) by the possibility that provincial governments may eventually find the arguments for a differential fee structure overwhelming. The sane thing to do is to act now to prevent these pressures from building up, and not to insist that the provinces which have a net inflow of post-secondary students grimace and bear the financial pain because Ottawa is, after all, making large fiscal transfers. Indeed, even without the spectre of differential fee structures, the principle of equitable financial treatment of all the provinces dictates, to my mind, federal compensation to a province whose universities accept disproportionately large numbers of non-resident students.

Recommendation 9: That the Government of Canada institute a program of financial compensation to the governments of those provinces which have a net influx of university students, and that the funds transferred be fixed at a level equal to the provincial per-student grant to the universities, times the number by which non-resident students exceed the number of provincial residents studying at universities elsewhere in Canada.

A transfer so calculated would effectively remove any financial incentive the province might otherwise have to discriminate against non-residents in the matter of fees. The one qualification to this statement arises from the possibility that those coming into the province to study might be taking specialized or advanced programs -- the more expensive ones -- in which case the average per-student institutional subsidy would be too low to offer full compensation. Still, the financial burden borne by the province would be very substantially reduced relative to what it is now. I repeat, this would be important both on equity grounds and as a precaution against any tendency which may develop to charge non-residents a differential fee.

There is one further program which the federal government might do well to contemplate, not for reasons specifically related to universities or university education, but simply to foster better understanding among regions. What I have in mind is a travel subsidy for students attending university in another province. This would probably best be organized on a basis analogous to international student exchange programs, which are set up on a reciprocal basis. In this case, the arrangements could be made by the provinces, conceivably coordinated through the Council of Ministers of Education, and the federal role would be limited to providing the travel subsidy. This would be a relatively cheap program, but would probably have a substantial payoff in ensuring that many universities have a mix of students from different regional backgrounds.

Recommendation 10: That the Government of Canada institute a program of travel subsidies to finance interprovincial student exchange programs.

4.3.4 RESPONSIBILITIES TO FOREIGN STUDENTS

Readers may have noticed that the recommendation for financial compensation to the governments of provinces experiencing a net influx of students was formulated in such a way that no distinction was made between non-residents of a province who were Canadian citizens or landed immigrants, and those who had come to Canada on student visas. Of course, the program could be designed in such a way as to discriminate against those on student visas, but I would hope it would not be; and in this case, a program whose main purpose was to deal with interprovincial mobility of students would also neatly fulfil Canadian responsibilities to foreign students.

4.3.5 INFORMATION SERVICES

I am in no position to make recommendations regarding Statistics Canada, the National Library, or other federal information services. The quality of these services is, however, of great importance to Canadian scholarship; and in some cases -- the National Library comes to mind -- the provision of a service could do much to promote excellence within the universities while actually saving them money. The potential appears to be there; but further investigation is necessary before specific suggestions or recommendations can be made.

The bodies which have the expertise to conduct an enquiry into the adequacy of federal information services are the professional associations -- discipline groups, the Social Science Federation, the Canadian Library Association, and others. They also presumably have an interest in doing so. Beyond the interest of such groups, however, or in addition to them, the universities have an institutional stake in seeing to the high quality of federal information services. In some cases, the institutional concern derives from the potential financial savings resulting from the availability of a given service, but mainly the question is one of excellence. Accordingly, I propose:

Resolution 3: That the universities of Canada, through the AUCC, explore with the relevant professional associations the adequacy of federal information services, and make recommendations for their improvement.

4.4 IMPLEMENTING THE CHANGES

One cannot expect the provincial governments to offer a spontaneous welcome to new federal initiatives in post-secondary education. All the provinces are leery of federal intrusions into areas which they consider to be exclusively within their own jurisdiction, and education occupies a virtually unique place as the subject of provincial jealousy. And yet all the provinces but Quebec have agreed to administer the Canada Student Loans Plan, and all but Quebec accept at least tacitly a federal presence in the sponsorship of research. Quebec has said it would prefer tax points or cash payments instead of federal research funding within the province; in other words it is anxious to trade in a federal program for unconditional fiscal transfers. Pending an agreement on this matter, however, it has explicitly permitted the universities of the province to accept federal research grants and contracts.

If the alternatives are as Quebec has argued they should be, the other nine provinces may follow Quebec's line. Why not take federal money instead of a federal program? The Laws of Economics may often seem arcane; but there is no mystery about one of the basic tenets of the discipline, namely, that a dollar in one's own pocket is almost always perferred to a dollar in someone else's pocket, even a benefactor's. Similarly, if money is being given away, the recipient will predictably choose the dollar without strings over the dollar which is tied to a specific purpose. So Quebec's preference makes a lot of sense, if untied cash is one of the options.

Even in the Alice-in-Wonderlandish world of federal-provincial fiscal relations, however, a touch of realism may be useful; and part of realism lies in knowing what the politically acceptable options are. From the federal perspective, is indefinite perpetuation of unconditional transfers under EPF one of the options? Is the transmutation of existing federal programs into more fiscal transfers an option? And at least equally to the point, in the context of a study on university excellence and financial questions related to it, what do the universities of Canada wish to argue ought to be the options?

One of the suppositions of the argument presented in this chapter is that the universities get little if any benefit out of the money transferred to the provinces as a federal contribution to post-secondary education. Another supposition, fed by nothing more substantial than rumour, is that the federal government is tiring of its commitment to make large yearly increases in its cash transfers under EPF -- the payments have escalated at a faster rate than anticipated -- when the purposes being served by these billions are hard to identify. And a third supposition is that the provinces, if faced with the prospect of amendments to EPF which would reduce future commitments under the scheme, would be willing to discuss alternative arrangements, provided the federal government does not hamper provincial action to fulfill their responsibilities in post-secondary education (and other areas).

The recommendations made in the previous section would not only avoid such interferences, but would, I believe, assist the provinces in accomplishing their objectives in post-secondary education. Specifically, an extension of student assistance may widen educational opportunities; or alternatively it may permit, without reducing accessibility, some lightening of the financial burden on provincial treasuries; and an extension of the Canada Student Loans Plan might be an important component in improving student assistance. Similarly, extending the range of costs covered by federal research grants and contracts would reduce or eliminate the financial implications, for the provinces, of federal research sponsorship. It is also quite likely that by shifting some of the support for universities -- I speak here of *proportions* -- to the sponsorship of reseach, the provinces' desire for diversification within university systems would be substantially easier to realize. Only if a province insists on accomplishing the objective of diversification and institutional specialization *by central administrative direction of a university system*, would there be a conflict between the recommendations in this report and basic provincial aims and concerns in post-secondary education.

The cost of expanding the federal sponsorship of research and/or of extending the federal role in student assistance could easily be quite large; that would depend on the scale of the programs. It is likely that the federal government would wish to treat any new or weightier financial obligations in matters related to post-secondary education as part of a package involving amendments to EPF. Admittedly, there is no reason for the universities to insist it should be so; perhaps the wisest course would be to say what they need, and let the federal government and the provinces work out the financial consequences. On the other hand, I suspect there is a danger that the federal government may abolish EPF in its present form without seeing this move in relation to other programs or responsibilities which ought, from a universities' perspective, to be treated as inter-related. Post-secondary education has been relegated to afterthought status in some previous amendments to federal-provincial fiscal arrangements, and it would be unfortunate if this happened again.

The first thing for the universities to do is to insist that EPF should not be precipitously amended or abolished, even if it does them little good in its present form. The important thing is to emphasize that if changes are to be made in a program which transfers $1.3 billion to the provinces so that they can give generous support to post-secondary education, the changes should be part of a package which includes other items of very great importance to the universities, especially research sponsorship and student assistance. These areas deserve special attention in this context, because they are the ones with the widest financial implications.

Recommendation 11: That the Government of Canada recognize its moral commitment not to amend the Established Programs Financing arrangements in a way prejudicial to the interests of the provinces, without giving three years' notice of its intention of doing so.

This may be a superfluous recommendation, since the law may actually prescribe it. That is how the law reads to me, but according to some senior Ottawa officials there may be another interpretation, and the government may announce the termination of the present EPF arrangements effective April 1, 1982. Be that as it may, when Prime Minister Trudeau announced the EPF scheme, he declared (1976: 17) that the arrangements would be "permanent, subject only to three years' notice, and this notice would not be given before the first two years of the new arrangements had elapsed". This is a moral commitment which the universities should recommend be respected in order to give adequate time for full consultation with the provinces on the future of fiscal transfers relating to post-secondary education, in the context of a more general review of the federal role in matters pertaining to universities.

To prepare their input into this review, the universities urgently need to reflect on their own needs and on their prospective situation over the next decade or two.

They have asked in the past for tripartite discussions in which they would particpate, together with both the federal and provincial governments, in the discussion of policies relating to them. This request has carried little weight because they have not formulated an overall position; they have only been able to say that they did not want to be left out of talks pertaining to them. To my mind, the tripartite discussion format is less important than being able to present to both orders of government a coherent and reasonable set of proposals aimed directly at resolving some of the problems of which both they and the governments are conscious. If the universities can formulate a position which can be respected because it truly comes to grips with those problems and is financially responsible, they will be well placed to influence the future direction of policies on whose wisdom -- and generosity -- they vitally depend.

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APPENDIX A

EDUCATIONAL ATTAINMENT OF 18 TO 30 YEAR OLDS ACCORDING TO THE 1971 CENSUS (PUBLIC USE SAMPLE TAPE), CANADA AND PROVINCES

NOTES:

(1) A description of the data source is contained in the text of the report, Section 1.2.2.

(2) Column 1 in each table ("completed high school") includes the percentages in columns 2 and 3 ("some university" and "university degree"); column 2 includes column 3.

(3) The bracketed figures in columns 1, 2, and 3 were averaged to yield an estimate of recent high school completion rates, percentage of youth who began a university degree program, and percentage of youth with a university degree. These averages are entered at the bottom of each column, and are the figures on which Chart 1-6 (in the text of the report) is based.

TABLE A-1
EDUCATIONAL ATTAINMENT, CANADA 1971, AGE GROUP 18-30

Age	Percentages			N
	Completed High School	Some University	University Degree	
18	59.7	9.5	.1	3928
19	64.1	15.7	.4	3703
20	65.2	19.9	1.8	3582
21	62.5	20.0	4.7	3427
22	61.7	20.9	7.8	3353
23	58.3	19.8	9.5	3397
24	57.1	20.5	10.7	3492
25	52.4	18.9	9.8	2882
26	51.6	19.5	10.3	2836
27	49.4	18.1	10.0	2755
28	47.2	17.7	9.4	2644
29	44.4	16.3	8.9	2425
30	42.2	15.9	8.4	2294
Average of bracketed age group	63.9	20.3	10.3	

TABLE A-2

EDUCATIONAL ATTAINMENT, NEWFOUNDLAND 1971, AGE GROUP 18-30

Age	Percentages			N
	Completed High School	Some University	University Degree	
18	48.7	14.8	0.0	115
19	50.9	13.8	0.0	116
20	55.0	13.7	0.9	109
21	46.4	14.5	2.7	110
22	41.0	17.0	6.0	100
23	35.8	10.9	3.6	109
24	47.7	14.9	5.6	107
25	47.6	9.6	4.8	84
26	48.2	16.8	7.2	83
27	43.5	9.4	4.7	85
28	45.5	16.9	5.2	77
29	37.3	3.0	1.5	67
30	32.8	14.7	4.9	61
Average of bracketed age group	51.5	15.1	5.1	

TABLE A-3

EDUCATIONAL ATTAINMENT, NOVA SCOTIA 1971, AGE GROUP 18-30

Age	Percentages			N
	Completed High School	Some University	University Degree	
18	47.1	17.1	0.0	140
19	50.4	20.3	1.5	133
20	40.3	17.6	0.8	119
21	40.6	18.2	4.2	143
22	44.8	18.9	8.4	143
23	42.9	18.8	6.1	133
24	37.3	15.5	8.7	161
25	37.9	17.8	10.5	124
26	32.0	13.9	4.9	122
27	26.0	12.2	8.1	123
28	22.1	12.2	5.4	131
29	29.3	10.4	0.0	116
30	33.3	16.7	7.9	114
Average of bracketed age group	45.9	18.6	8.4	

TABLE A-4

EDUCATIONAL ATTAINMENT, NEW BRUNSWICK 1971, AGE GROUP 18-30

Age	Percentages			N
	Completed High School	Some University	University Degree	
18	42.5	9.4	0.0	127
19	58.8	19.9	0.0	136
20	51.3	15.7	0.0	115
21	49.0	21.0	4.9	143
22	49.1	22.4	7.2	112
23	50.0	13.5	5.9	118
24	48.2	17.7	9.9	141
25	45.5	19.9	9.0	101
26	43.5	19.6	12.0	92
27	38.1	10.6	7.7	105
28	48.9	13.6	7.9	88
29	33.0	13.4	9.3	97
30	37.8	9.9	5.4	111
Average bracketed age group	53.0	19.7	10.3	

TABLE A-5

EDUCATIONAL ATTAINMENT, QUEBEC (ANGLOPHONES) 1971, AGE GROUP 18-30

Age	Percentages			N
	Completed High School	Some University	University Degree	
18	77.8	27.5	0.0	171
19	82.8	33.8	.7	145
20	83.8	40.2	3.8	154
21	77.6	30.8	10.5	143
22	72.5	34.5	16.9	142
23	74.8	37.4	17.4	155
24	68.1	36.2	17.5	160
25	65.1	23.1	11.2	126
26	51.9	21.8	14.3	133
27	61.3	24.1	11.2	124
28	65.3	31.3	12.7	118
29	53.8	19.6	10.2	117
30	49.4	22.8	11.4	79
Average bracketed age group	81.5	36.0	17.3	

TABLE A-6
EDUCATIONAL ATTAINMENT, QUEBEC (FRANCOPHONES) 1971, AGE GROUP 18-30

Age	Percentages			N
	Completed High School	Some University	University Degree	
18	61.3	5.9	0.3	1036
19	64.7	7.8	0.9	972
20	65.2	10.2	2.4	954
21	63.2	13.2	2.8	862
22	61.0	15.9	6.9	890
23	52.9	13.0	7.3	841
24	52.7	14.0	7.8	845
25	51.5	13.7	7.5	844
26	44.0	14.0	7.9	768
27	42.8	15.8	7.9	738
28	37.0	12.4	6.3	687
29	37.1	13.7	8.1	665
30	38.3	12.8	5.7	648
Average bracketed age group	64.4	14.3	7.8	

TABLE A-7

EDUCATIONAL ATTAINMENT, ONTARIO 1971, AGE GROUP 18-30

Age	Percentages			N
	Completed High School	Some University	University Degree	
18	59.7	6.6	0.0	1237
19	63.4	15.1	0.2	1263
20	67.9	22.1	0.9	1164
21	64.9	21.3	4.4	1140
22	67.1	23.4	8.2	1108
23	63.6	21.5	11.3	1127
24	61.2	20.4	11.1	1155
25	52.2	19.1	10.5	885
26	56.1	19.0	10.1	866
27	51.3	15.2	9.2	859
28	48.3	15.6	8.6	865
29	48.1	15.8	10.4	729
30	43.7	14.5	8.6	687
Average of bracketed age group	66.6	22.3	11.0	

TABLE A-8

EDUCATIONAL ATTAINMENT, MANITOBA 1971, AGE GROUP 18-30

Age	Percentages			N
	Completed High School	Some University	University Degree	
18	53.0	7.6	0.0	198
19	63.0	20.1	0.6	154
20	57.1	20.9	2.4	168
21	60.5	24.0	8.6	162
22	57.7	22.4	11.5	156
23	46.6	19.5	8.6	174
24	51.3	21.3	21.3	150
25	43.8	23.5	13.7	153
26	39.9	17.5	9.1	143
27	40.0	17.8	7.4	135
28	39.1	18.0	11.7	128
29	33.8	12.8	8.3	133
30	28.7	15.7	9.2	108
Average of bracketed age group	60.2	22.4	14.7	

TABLE A-9

EDUCATIONAL ATTAINMENT, SASKATCHEWAN 1971, AGE GROUP 18-30

Age	Percentages			N
	Completed High School	Some University	University Degree	
18	59.9	13.4	0.0	202
19	69.8⌉	22.0	0.0	159
20	64.9|	28.6	2.7	185
21	69.1⌋	25.4	3.0	165
22	62.7	23.8⌉	4.0	177
23	64.0	26.2|	8.0⌉	175
24	57.8	28.4⌋	14.5|	187
25	54.7	19.2	6.8⌋	161
26	53.7	28.8	8.0	149
27	55.7	22.8	9.5	158
28	48.2	22.7	9.9	141
29	42.1	14.3	3.2	126
30	45.0	21.5	9.4	149
Average of bracketed age group	67.9	26.1	9.8	

TABLE A-10

EDUCATIONAL ATTAINMENT, ALBERTA 1971, AGE GROUP 18-30

Age	Percentages			N
	Completed High School	Some University	University Degree	
18	67.7	9.0	0.0	310
19	67.5	20.4	0.0	265
20	77.9⎤	25.6	2.7	258
21	69.6⎥	23.8⎤	9.3	227
22	72.0⎦	24.6⎥	11.7⎤	232
23	71.6	25.8⎦	12.5⎥	225
24	61.2	22.4	12.0⎦	268
25	61.7	19.2	10.9	193
26	53.1	18.8	9.6	207
27	57.4	20.3	11.7	197
28	48.7	12.7	5.8	189
29	47.3	14.5	6.0	165
30	47.3	14.4	8.9	146
Average of bracketed age group	73.2	24.7	12.1	

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TABLE A-11

EDUCATIONAL ATTAINMENT, BRITISH COLUMBIA 1971, AGE GROUP 18-30

Age	Percentages			N
	Completed High School	Some University	University Degree	
18	65.3	14.2	0.0	360
19	72.5	22.2	0.0	334
20	74.0	26.6	1.8	339
21	73.6	27.7	4.7	296
22	68.5	21.7	5.6	267
23	71.0	21.1	7.8	310
24	71.2	24.9	9.5	285
25	63.4	27.2	11.0	191
26	67.6	20.4	10.8	250
27	60.9	17.6	9.3	215
28	61.4	20.3	11.4	202
29	58.8	20.1	8.8	194
30	54.0	23.0	10.9	174
Average of bracketed age group	73.4	25.3	10.4	

APPENDIX B

RESOLUTIONS, POLICY OPTIONS FOR PROVINCIAL GOVERNMENTS, AND RECOMMENDATIONS

RESOLUTIONS: These are proposals for action by the universities of Canada.

# 1 — That the universities of Canada sponsor an enquiry into the use of regression techniques of costing university programs, both as a rationale for assigning program weights within an enrolment-based formula, and as a partial contribution to solving the problem of university accountability for the use of public funds without having external supervision of and control over university administration.

(page 332)

2 — That the universities of Canada affirm the following Canadian purposes in higher education, distinct from but complementary to the purposes of each province; and that they encourage the Government of Canada to do likewise, while recognizing that any action it takes to achieve these purposes must be consistent with provincial government concerns and responsibilities in post-secondary education, and with the constitutional division of powers:

(1) To equalize so far as possible educational opportunity at the university level in all parts of Canada.

(2) To meet Canadian needs for the training of highly qualified manpower, to the extent that these needs are not being met by provincial policies in relation to post-secondary education.

(3) To sponsor and to promote excellence in research and scholarship, both to support cultural, scientific, and technological development in a general way, and to meet specific research needs of an applied or mission-oriented character. One

facet of this responsibility is the training and retention within Canada of scholars and scientists.

(4) To support the use of both official languages of Canada for instructional purposes at the post-secondary level (as at other levels). This is the purpose of bilingualism grants, which subsidize the provision of instruction in whichever of the two languages is in minority position locally.

(5) To meet Canadian obligations to the international community, for example through:

--support of foreign students studying in Canada;

--financing programs of technological assistance or assistance to universities in foreign countries, and international exchanges of scholars and scientists; and

--supporting a Canadian contribution to international scholarship and research on a scale consistent with Canada's size and wealth.

(pages 374-375)

3 — That the universities of Canada, through the AUCC, explore with the relevant professional associations the adequacy of federal information services, and make recommendations for their improvement.

(page 402)

POLICY OPTIONS FOR PROVINCIAL GOVERNMENTS:

Note: Most of these options are not mutually exclusive.

1 -- Introduce or reintroduce the practice of allocating general provincial operating grants to universities according to a formula based on current enrolments, weighted by program and level.

(page 324)

2 — Introduce averaging provisions into the formula, so that grants are allocated among institutions according to weighted enrolments over a period of years (say, three or five) preceding the financial year in question.

(page 327)

3 — Amend the formula by assigning each institution a floor figure for enrolment units.

(page 328)

4 — Amend the formula by assigning each institution a ceiling figure for enrolment units.

(page 328)

5 — In the formula, treat graduate enrolments less generously than has been customary hitherto in Canada.

(page 330)

6 — Provide a provincial grant to support the basic or fixed costs of approved academic programs, i.e., those costs incurred in mounting or maintaining such programs for a single student; and provide an additional grant to cover marginal costs, beyond a stipulated minimum enrolment, the additional grant to be determined by enrolment-based formula.

(page 333)

7 — Fund "academic expenditures" -- instruction and non-sponsored research -- by an enrolment-based formula, and other expenditures by other formulas or on a discretionary basis.

(page 334)

8 — Employ a formula not only for distributing available funds among a number of institutions, but for determining the level of provincial spending on universities (operating grants).

(page 336)

9 — Employ a fully discretionary budget-review system for determining the grant that each university within the province requires, taking into account the financial needs of the institution and the funds it obtains from other sources.

(page 338)

#10 — Control the fees levied by universities, and: —

(a) Reduce, possibly to zero, the proportion of university incomes deriving from fees; or

(b) Peg fees at some assigned proportion of estimated program costs (i.e., fees vary substantially by program); or

(c) Raise fee levels, so that students bear a higher proportion of university operating costs than they do now; offer conventional or contingent repayment loans to counteract the presumably adverse impact on access and participation rates; and/or

(d) Raise fee levels, but counterbalance the increased fees with grants or fee-vouchers to students, either universally or on the basis of a means test (thus shifting a portion of the public subsidy from institutions to students).

(pages 339-340)

#11 — Let universities use their own discretion in setting fees, counteract any adverse impact on access and participation rates by appropriate student aid schemes, as in Options 10-c and 10-d.

(page 340)

#12 -- Support research by contract and possibly also by grants, in areas of special provincial concern, e.g., education, social services and health care, and technological development.

(pages 355-356)

#13 — Create provincial granting councils with functions analogous to, and perhaps duplicating, those of the federal granting councils, particularly in the support of specific projects proposed by individual faculty members.

(page 356)

#14 -- Support, whether through quasi-independent granting councils or through government departments, the development of a specialized research capability in selected areas of scientific, technological, and scholarly activity, conceivably with intent to strengthen the position of provincial researchers in competing for federal funds.

(page 356)

#15 — Ensure, through a program of grants to universities or to institutes affiliated with universities, that the funding of university research supports the implementation of a general plan for the development of a provincial university system, each university having selected areas of specialization.

(page 356)

#16 — Work towards the development of a comprehensive research capability within the province by (a) defining the province's research needs and priorities, (b) choosing appropriate instruments for the implementation of a research strategy — in government laboratories, in industry, in research institutes, and in universities, and (c) promoting university research, in those areas identified as being appropriate for the universities, through a combination of the techniques or mechanisms mentioned in Options 12 through 15.

(page 356)

RECOMMENDATIONS: These are proposals which relate to policies of the Government of Canada.

# 1 — That the Government of Canada redesign its policies and activities in relation to universities, in accordance with readily identifiable purposes; and that it do so through the implementation of distinctly federal programs which dovetail with and supplement provincial action in post-secondary education.

(page 393)

# 2 — That the Government of Canada recognize the importance of stability in the funding of research by committing itself to minimum constant-dollar appropriations for the granting councils, on a multi-year basis, e.g., by guaranteeing a budgetary allocation pegged to the rate of growth in the GNP.

(page 394)

# 3 -- That the Government of Canada endorse the objectives identified by each of the granting councils in the plans they have formulated, and fund the councils at a level sufficient to implement those plans.

(page 394)

# 4 -- That the Government of Canada open discussions with the provinces with a view to augmenting the financial resources of the granting councils on the understanding that they will:

(a) cover indirect costs, and

(b) compensate universities and other institutions for release time for staff whose research they support.

(page 395)

# 5 — That, in the case of research grants, allowances for release time be made on the basis of a reasonable estimate of the time a competent researcher should spend on the project, subject to later submission of a new grant application; and that in the case of contracts, such allowances either be made on the same basis, or by *ex post* reckoning.

(page 395)

# 6 — That allowances for indirect costs either be negotiated with each institution at a standard rate for that institution, or be fixed at a level representing an average of indirect cost ratios among representative institutions, presumably about 50 per cent of direct costs including release time (a figure drawn from the CAUBO *Pilot Study on the Costs of University Research*).

(page 395)

# 7 — That those proportions of grants and contracts relating to release time and to indirect costs be awarded to the institution employing the researcher, and be treated by it as general revenue.

(page 395)

# 8 — That, if the Federal-Provincial Task Force on Student Assistance expresses interest in an income-contingent loans scheme, or otherwise recommends the extension of the loan remission plans operating in some provinces, the Government of Canada explore with the provinces how it might appropriately contribute to the implementation of such recommendations.

(page 399)

# 9 — That the Government of Canada institute a program of financial compensation to the governments of those provinces which have a net influx of university students, and that the funds transferred by fixed at a level equal to the provincial per-student grant to the universities, times the number by which non-resident students exceed the number of provincial residents studying at universities elsewhere in Canada.

(page 400)

#10 — That the Government of Canada institute a program of travel subsidies to finance interprovincial student exchange programs.

(page 401)

#11 — That the Government of Canada recognize its moral commitment not to amend the established programs financing arrangements in a way prejudicial to the interests of the provinces, without giving three years' notice of its intention of doing so.

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